100 XP

Introduction

1 minute

You've likely had the chance to load and transform data from numerous sources, build visuals, create DAX equations, and even publish a report or two to Microsoft Power BI. The next step on your data analysis journey is to share these reports with your wider audiences and organizations. You can accomplish this task in a workspace, which is a feature of Power BI. A workspace is a centralized repository in which you can collaborate with colleagues and teams to create collections of reports and dashboards.
https://www.microsoft.com/en-us/videoplayer/embed/RWFJCN?postJsllMsg=true

Workspaces offer the following benefits:

- Focused collaboration efforts. You can use workspaces to house reports and dashboards for use by multiple teams.
- Ability to share and present reports and dashboards in a single environment.
- Assurance that the highest level of security is maintained by controlling who can access datasets, reports, and dashboards.

This module will discuss several tasks that are focused on helping you to create and manage a workspace in Power BI. Additionally, you will learn about importing and updating assets in a workspace, configuring data protection, troubleshooting data, and much more.

Next unit: Distribute a report or dashboard

Continue

100 XP

Distribute a report or dashboard

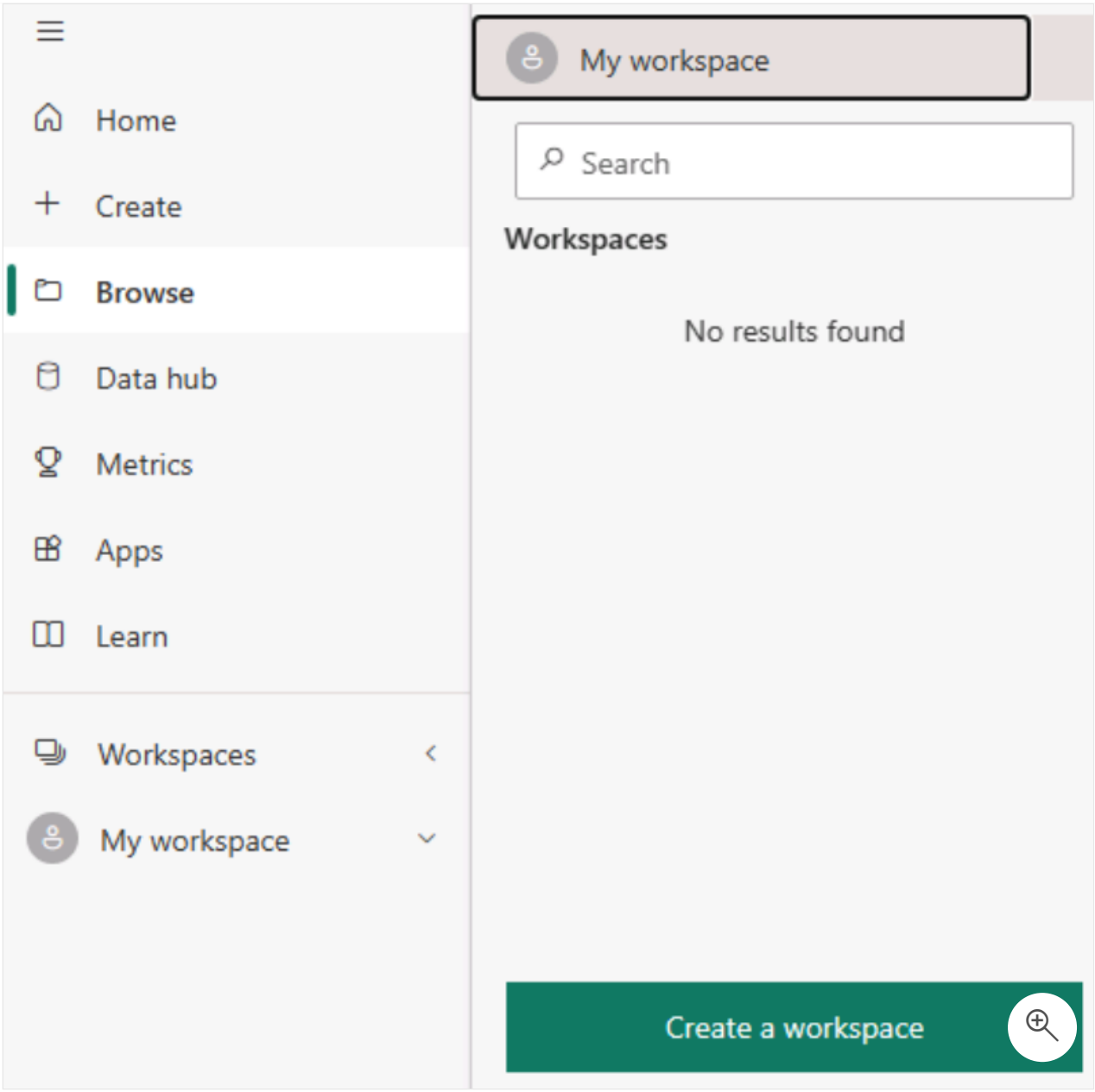
7 minutes

Consider a scenario where you have created a few reports for the Sales team at Tailwind Traders. The issue that you have encountered is determining how to make these reports viewable and shareable. By creating a workspace in Power BI, you can house your reports in one location, make them shareable, collaborate with other teams, and update reports.

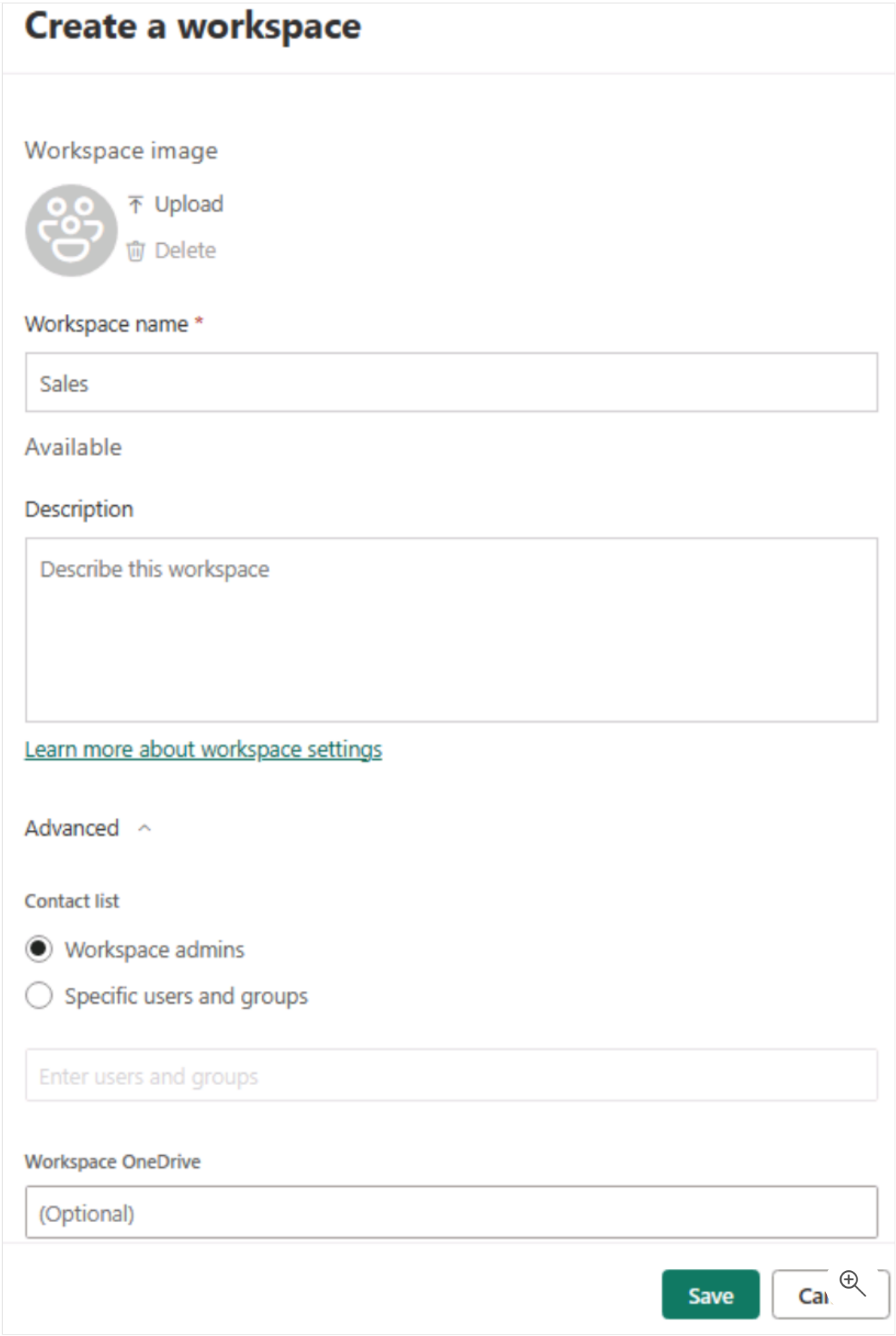
Create a workspace

Your first task is to create a workspace by following these steps:

1. Go to Power BI service .
2. Select the **Workspaces** menu from left navigation blade.
3. Select the **Create a workspace** button at the bottom of the resulting panel.



4. In the **Create a workspace** window, enter information in the **Workspace name** and **Description** fields and then upload a **Workspace image**.



5. In the **Advanced** drop-down menu, you can create a **Contact list** of users who will receive notifications if issues with the workspace occur.

By default, these users are the workspace admins, but you can also add specific users. You can also add this workspace to a specific OneDrive and then choose whether this workspace will be a part of a dedicated capacity or not. Dedicated capacities are Power BI Premium features that ensure that your workspace will have its own computational resources as opposed to sharing resources with other users.

6. After you have filled out pertinent fields on the **Create a workspace** window, select **Save**.

You have now created a workspace.

Assign workspace roles

Now that you've successfully created a workspace, the Sales team wants to collaborate with other teams to build additional dashboards and reports. As the workspace owner, you want to ensure that appropriate access is given to members of the Products team because their team includes stakeholders and developers. Workspace roles allow you to designate who can do what within a workspace.

There are four roles for workspaces, and it's advised that you grant the minimum access necessary to collaborators. For consumers, skip workspace role assignment, and provide access through the app instead in the next section.

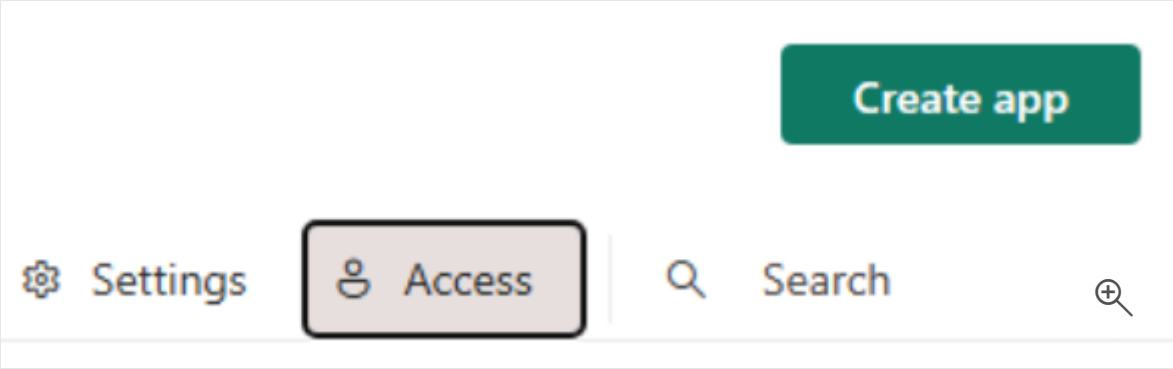
The four roles are listed below, in order of most permissive to least, along with select permissions. For full permissions, review the Roles in workspaces documentation.

- **Admin**
  - Update and delete the workspace
  - Add or remove people, including other admins
- **Member**
  - Add members or others with lower permissions
  - Publish, unpublish, and change permissions for an app
- **Contributor**
  - Create, edit, and delete content, such as reports, in the workspace
  - Publish reports to the workspace
- **Viewer**
  - View and interact with an item
  - Read data that's stored in workspace dataflows

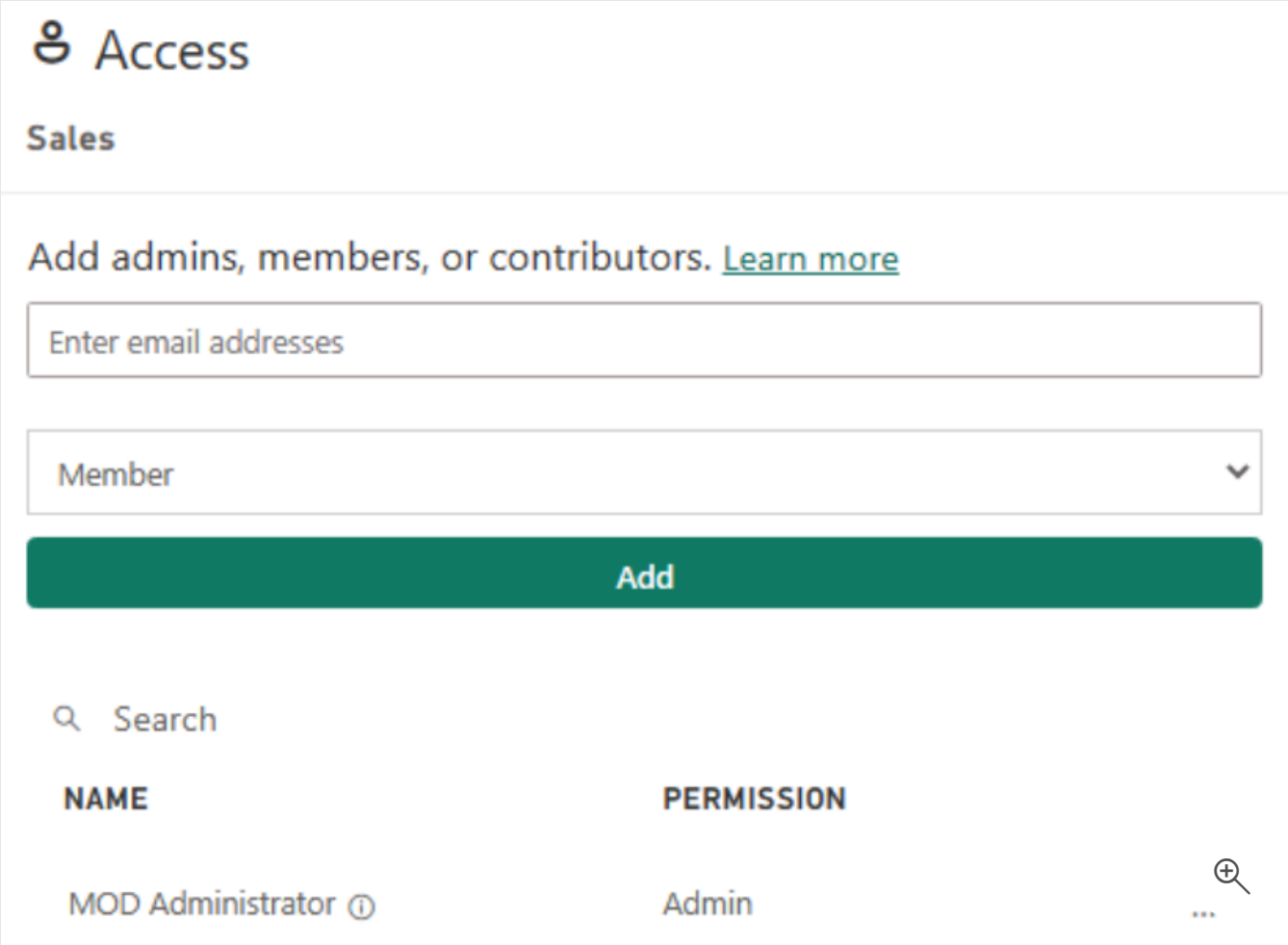
> ⓘ **Note**

If the workspace is backed by a Premium capacity, a non-Pro user can view content within the workspace under the **Viewer** role.

To assign these roles to users, go to the workspace that you've created and, in the upper-left corner of the ribbon, select **Access**.



In the resulting **Access** window, you can add email addresses of individual users, mail-enabled security groups, distribution lists, Microsoft 365 groups, and regular security groups, and then assign them to their specific roles. You can also change the user's assigned role at the bottom of the page and delete the user from the workspace by selecting the ellipsis (...) next to their name.

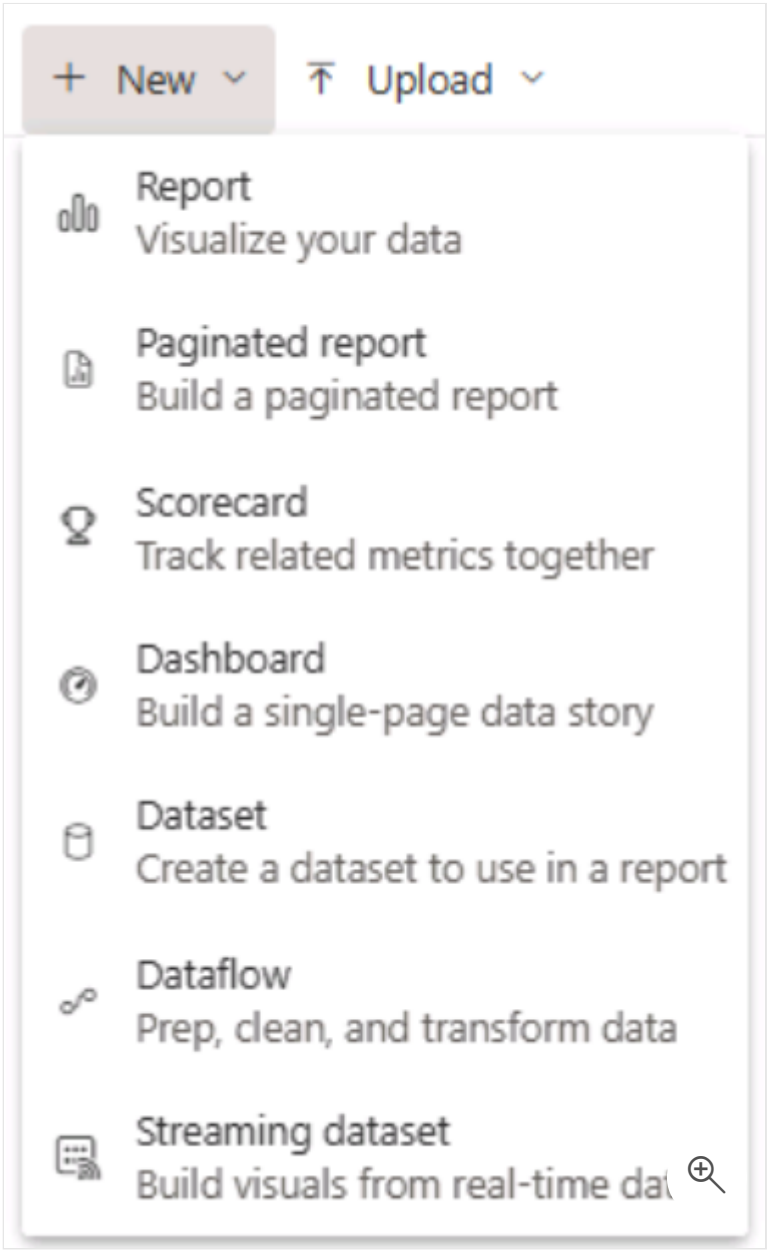


Create and configure an app

After creating an app workspace and assigning your collaborator-specific roles, you want to add content to your app workspace. Content can be in the form of reports, dashboards, datasets, dataflows, and so on.

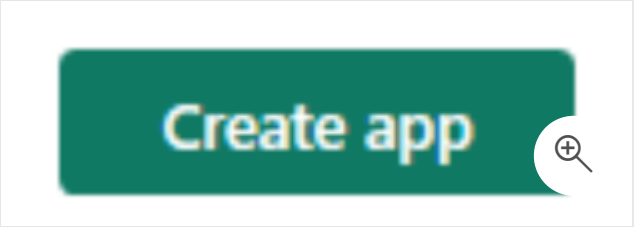
An app is a published, read-only window into your data for mass distribution and viewing. When ready to share apps with your users, you can publish the app. This process requires a Power BI Pro license. Consuming and viewing an app also requires a Pro license, or the workspace must be hosted in a Premium capacity.

You can now publish from Power BI Desktop to your new workspace, and upload saved files or create new items from within the workspace.

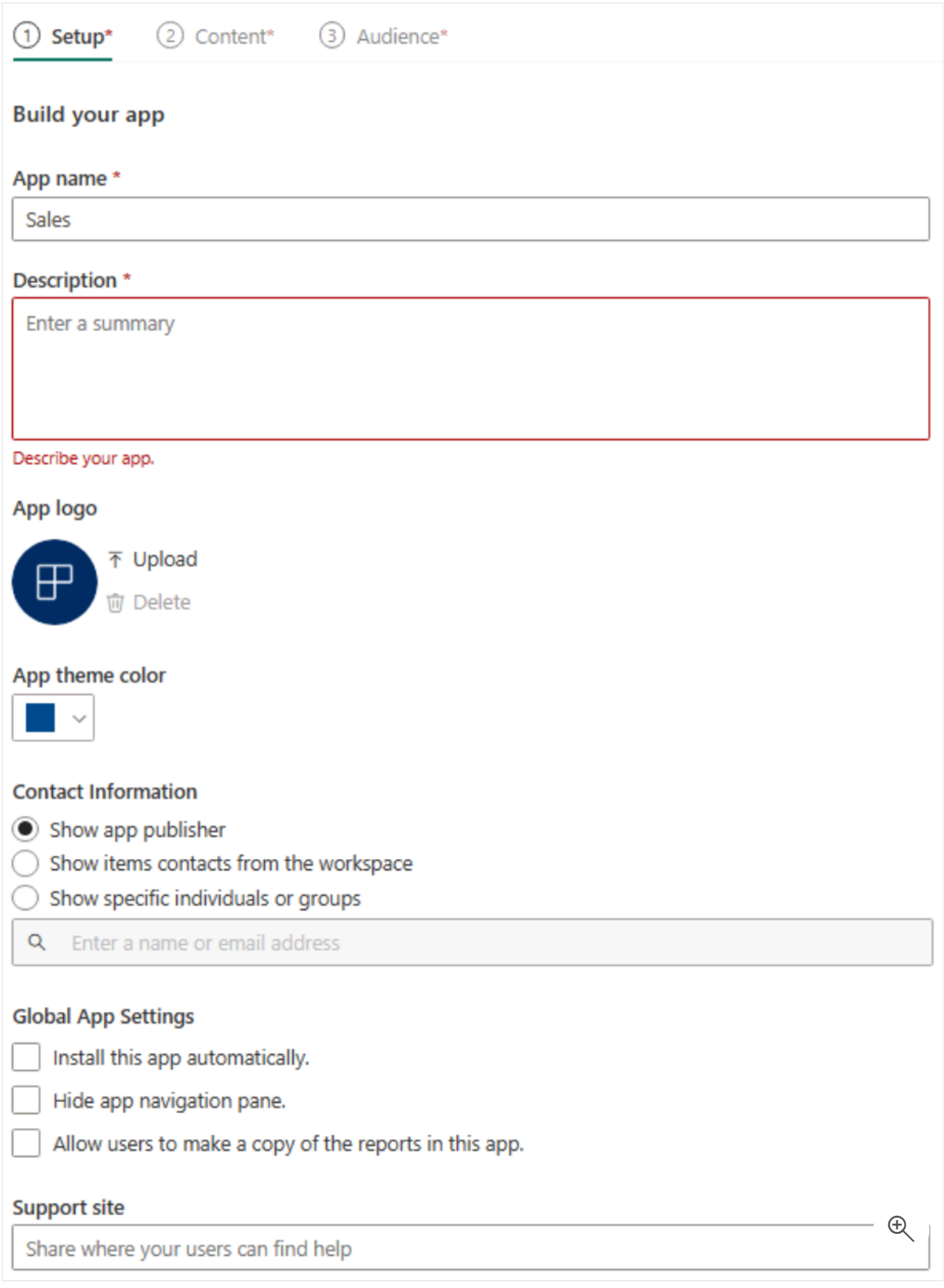


When you are ready to publish your app with its collection of reports, dashboards, and datasets, return to the workspace and select **Create app** in the upper-right corner of the

ribbon.



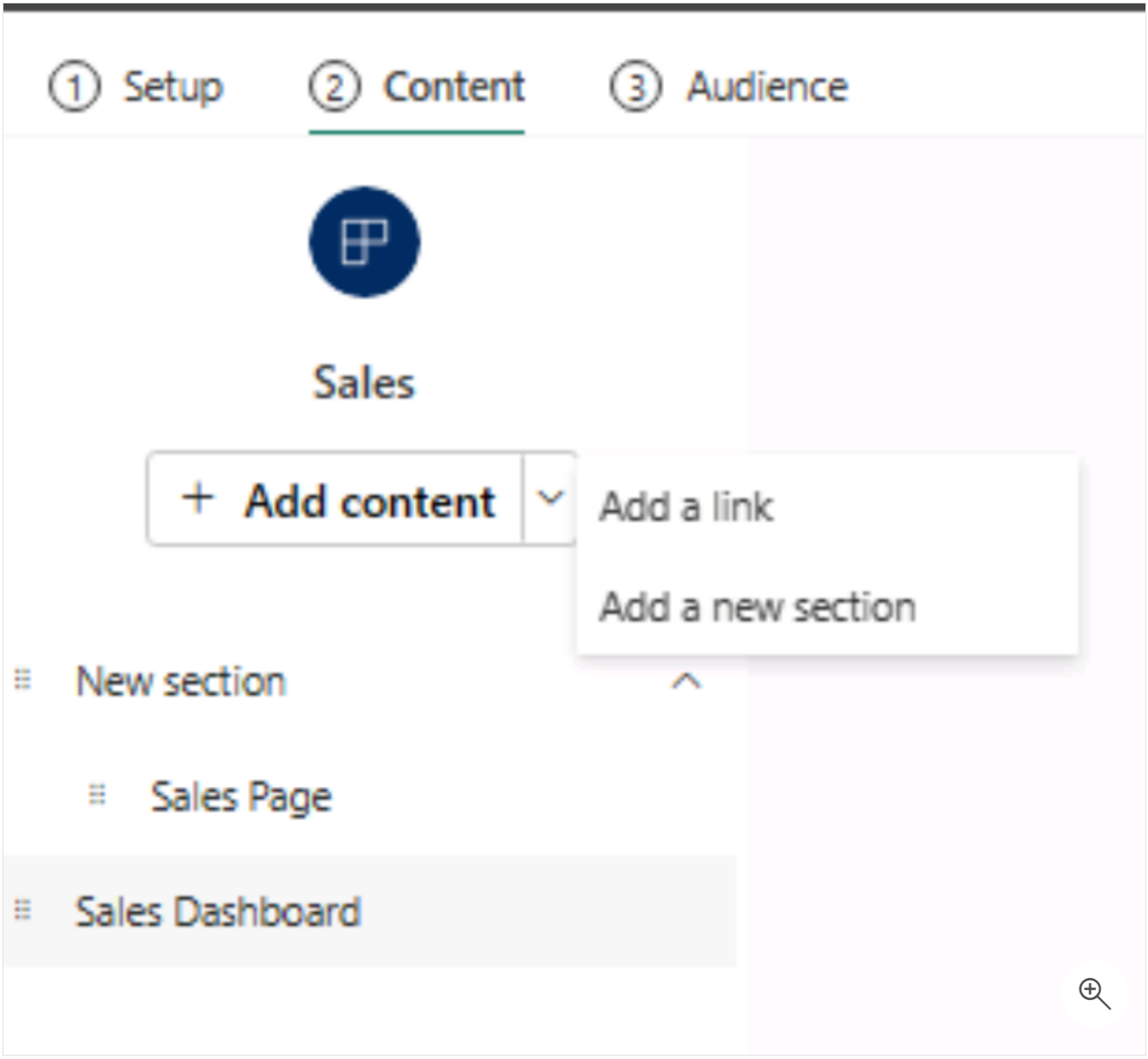
The **Build your app** experience starts on the Setup page, where you add a name and description for the app. You can also customize the theme color and add a logo if desired.


1 Setup*
2 Content*
3 Audience*
Build your app
App name *
Sales
Description *
Enter a summary
Describe your app.
App logo
Upload
Delete
App theme color
Contact Information
Show app publisher
Show items contacts from the workspace
Show specific individuals or groups
Enter a name or email address
Global App Settings
Install this app automatically.
Hide app navigation pane.
Allow users to make a copy of the reports in this app.
Support site
Share where your users can find help

Tip

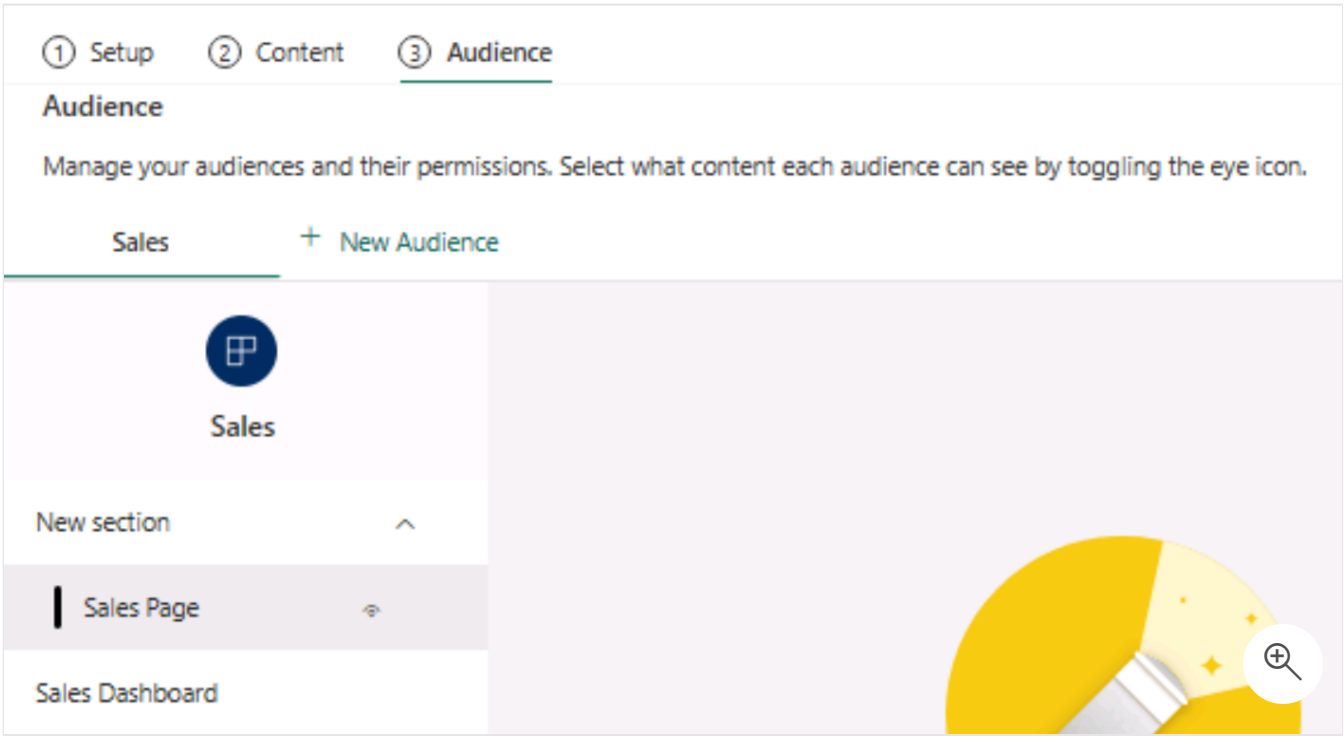
Use the **Contact Information** and **Support Site** fields to help users contact the appropriate person(s) and how to find help for the app.

Under the **Content** tab, you can choose which content to include and change the viewing order. You can add content in the workspace, new sections for grouping, and external links.



In the **Audience** tab, you're now able to choose one or more audiences with different viewing options.

First, you'll select which reports you want visible to the default audience created. Select what content each audience sees by toggling the eye icon on the right. In the following screenshot, the audience is called "Sales" by default, but you can right-click and rename it.

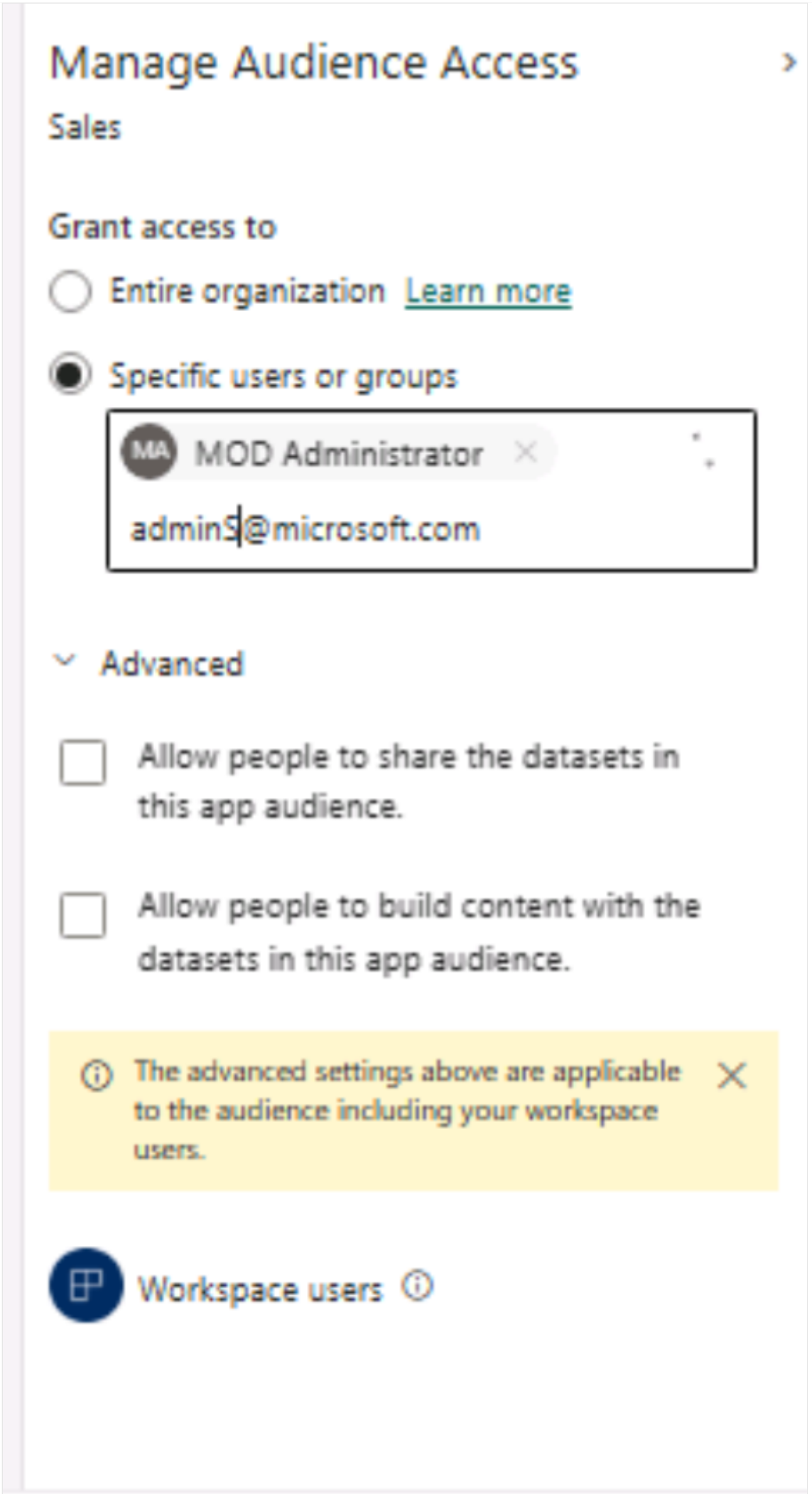


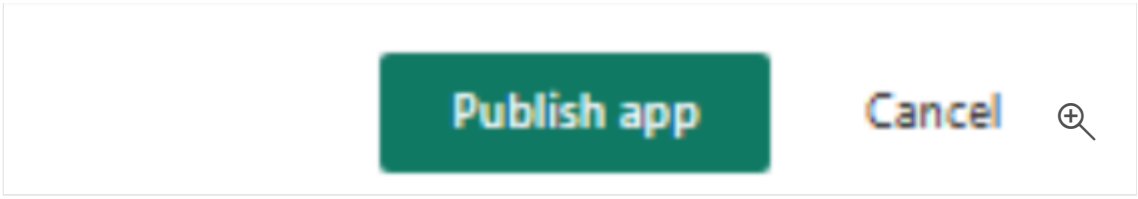
After selecting the viewable content, you can **Manage Audience Access**. You can **Grant access to** the *Entire organization* or *Specific users or groups*. For Specific users or groups, you can enter any mail-enabled account accessible within your Power BI tenant.

In the **Advanced** section, you can choose to grant additional permissions, individually or neither:

- Allow people to share the datasets in the app audience
- Allow people to build content with the datasets in the app audience

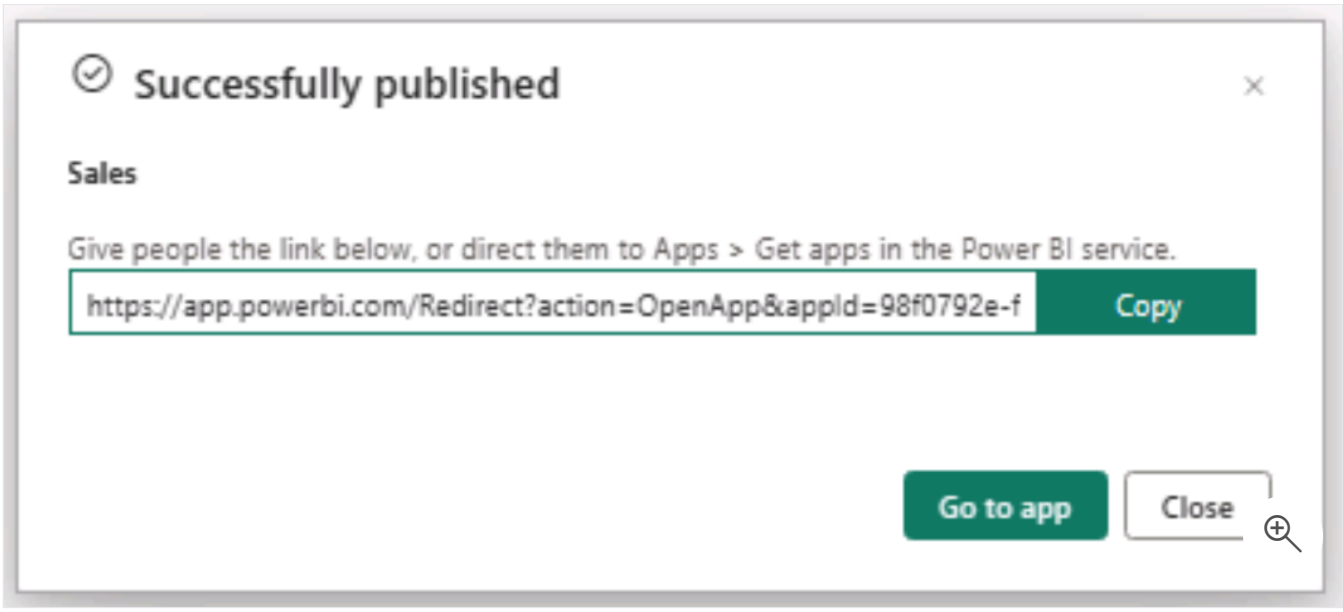
Lastly, notice that **Workspace users** are already included in the audience by default. This goes back to the roles we covered earlier.


Manage Audience Access
Sales
Grant access to
Entire organization Learn more
Specific users or groups
MA MOD Administrator
admin$@microsoft.com
Advanced
Allow people to share the datasets in this app audience.
Allow people to build content with the datasets in this app audience.
The advanced settings above are applicable to the audience including your workspace users.
Workspace users



> **Note**
>
> **Entire organization** may not be accessible due to settings configured by your Power BI Administrator. Additionally, not all email addresses may be available, such as external accounts.

When you're ready, select **Publish app**. Congratulations, you just published an app! You'll receive a notification with the link to distribute to consumers, and an option to go to the app.

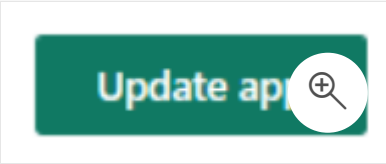


> **Note**
>
> When publishing, there's a notification that it may take 5-10 minutes or longer to reflect changes, depending on your tenant and size of report. It's not possible to guarantee changes will be reflected in 10 minutes or less.

Update workspaces

After publishing your app, you realize that you want to make updates within your workspace.

Don't worry, it's as easy as publishing your app. From the workspace, the **Create app** button will now say **Update app**. Select Update app, then move to the appropriate section and make your changes. When ready to save your changes, select the **Update app** button in the bottom where **Publish App** was before.



For more information, see Publish an app in Power BI.

Next unit: Monitor usage and performance

Continue >

How are we doing? ☆ ☆ ☆ ☆ ☆

100 XP

Monitor usage and performance

2 minutes

Knowing about the usage and performance of your workspace is crucial because it:

- Focuses your efforts for improvement. If you know the areas that experience the worst performance, you can concentrate your efforts for improvement in those areas.
- Quantifies the impact of your reports. Usage metrics help you determine your reports' success.

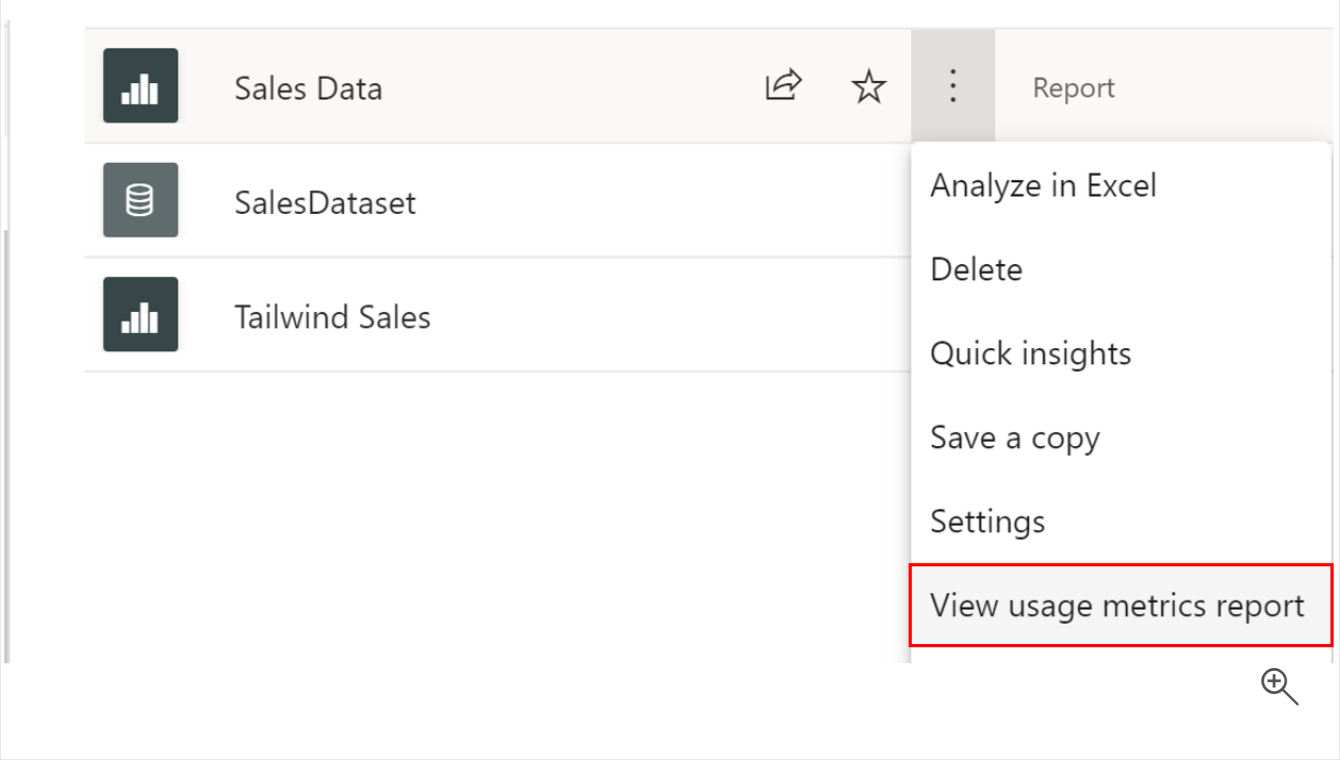
These performance and usage metrics are available features that you can use in a workspace. With these metrics, you can view who's using your reports, what actions are being done on the reports, and what performance issues exist.

For example, consider the continuing scenario where you work for Tailwind Traders. You've successfully added reports to your workspace, published an app, and begun the process of collaborating with the Products team. Commentary begins to circulate around the company about how useful these workspaces are, resulting in more users being added to the workspace. The Sales team knows that performance might worsen with the increased addition of users. Consequently, the Sales team has asked you to monitor usage and performance of the workspace.

Configure and view usage metric reports

Usage metric reports are available for Power BI Pro users and can only be accessed by users with the role types of **Admin**, **Member**, or **Contributor**.

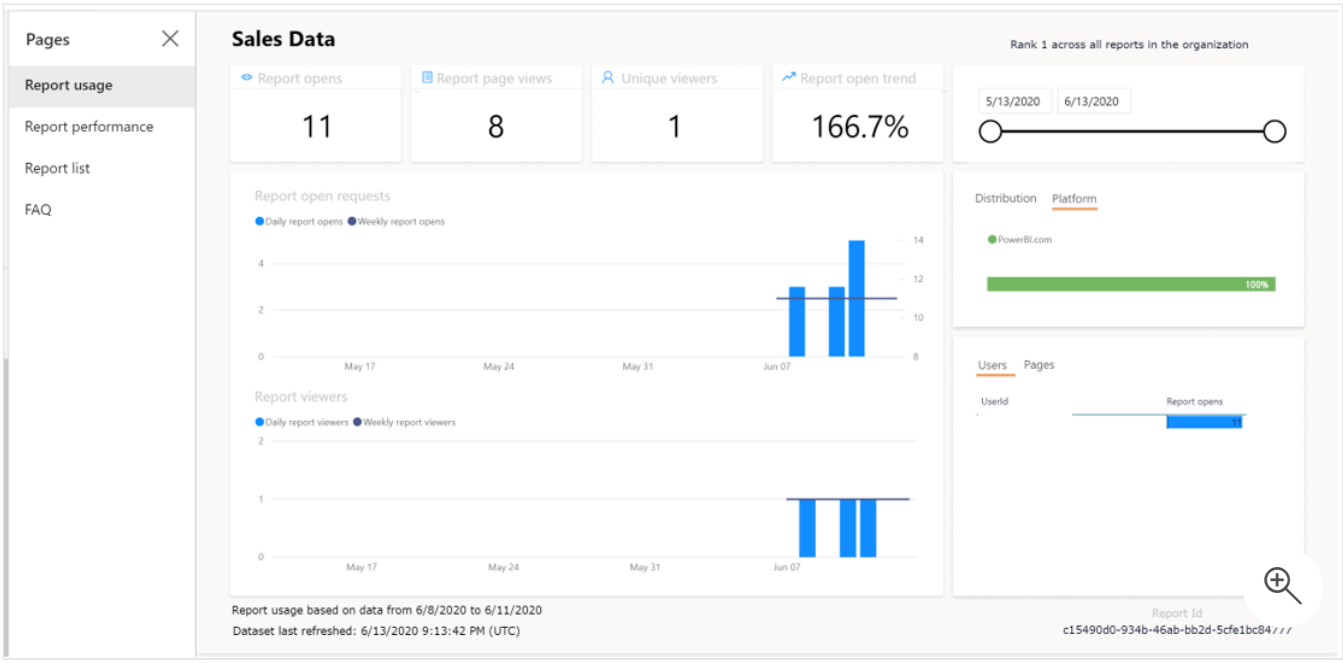
To view usage metric reports, go to the pertinent workspace. Find the report or dashboard that you want to see usage metrics for. For example, if you want to see the usage metrics report for **Sales Data**, select the ellipsis (**...**), and then select **View usage metrics report** from the drop-down menu.



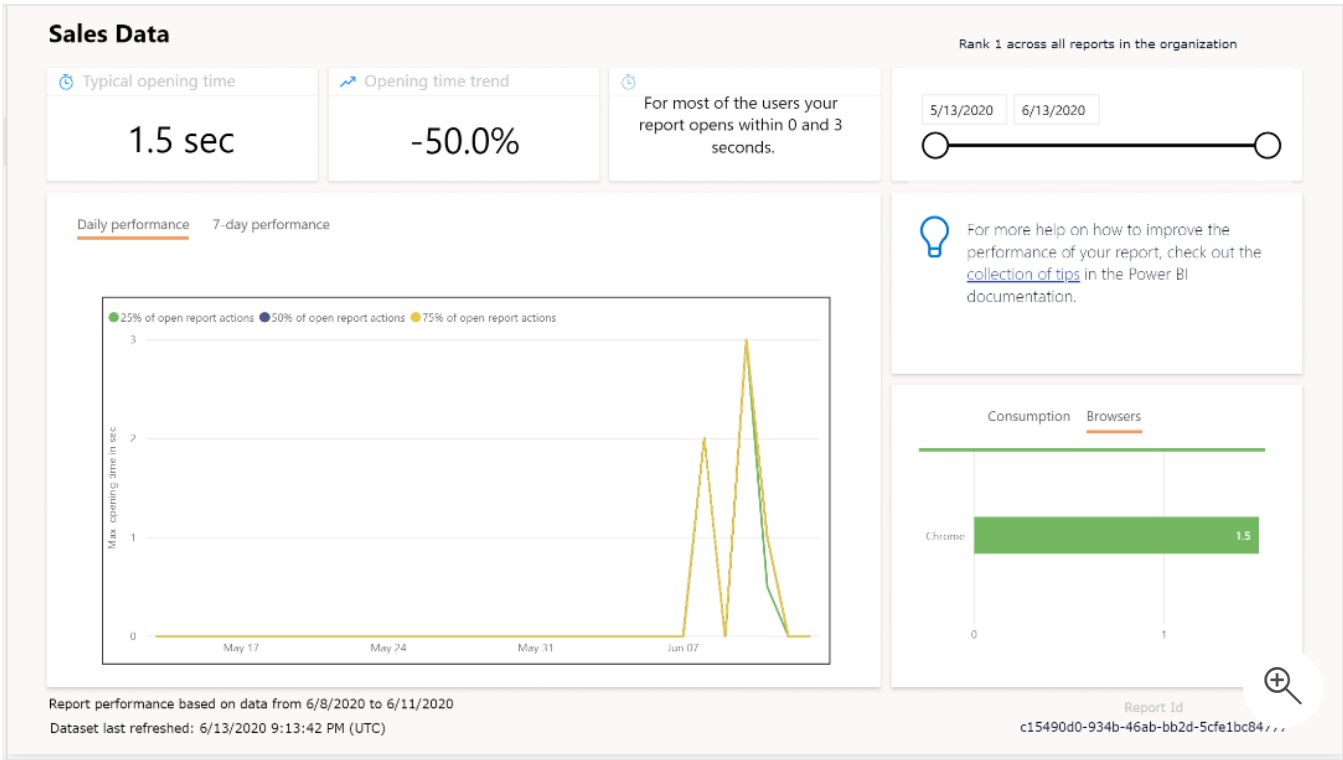
When the usage metrics report is ready for viewing, you will receive a prompt that will direct you to a dashboard. In the **Report usage** tab, you can view such details as:

- **Viewers per day**, **Unique viewers per day** (which doesn't include users who returned to the same reports multiple times), and **Shares per day** charts
- **Total Views**, **Total Viewers**, and **Total Shares** KPI cards
- **Total views and shares ranking** (compares how your report is doing in comparison to other reports in the app)
- **Views by Users** (details about each specific user that viewed the dashboard)

You can also filter by the distribution method of the report (for example, through sharing or from the workspace directly) and platform type (for example, mobile or web).



You can also view performance metrics on the **Report performance** tab, as shown in the following screenshot.



On the **Report performance** tab, you can view metrics such as:

- **Typical opening time** - How long it takes, at the fiftieth percentile, to open the report.
- **Opening time trend** - How the typical opening time changes over time. This metric can tell you how the report is performing as the number of users starts to grow.
- **Daily/7-Day Performance** charts - Highlight the performance for 10, 50, and 90 percent of the open-report actions every day and over a seven-day period.

- Filters for date, so you can see how the performance changes according to the day.

For more information, see Monitor Usage Metrics.

Next unit: Recommend a development life cycle strategy

Continue >

How are we doing? ☆ ☆ ☆ ☆ ☆

100 XP

Recommend a development life cycle strategy

7 minutes

The development process is iterative; it typically requires building an initial solution, testing the solution in a different environment, returning to make necessary revisions, and eventually releasing a final product. This process is known as a development life cycle. This process can take place in several different ways and in different environments.

To continue with the module scenario, the Sales team at Tailwind Traders is impressed with the reports that you have delivered, and as they continue to use the abilities of Power BI, they also want to maintain data and report integrity without slowing development timelines. As a result, they have asked you to create a development pipeline that will be used by all teams to develop reports and dashboards. Power BI provides deployment pipelines that you can use to help accelerate development and minimize errors.

Deployment pipeline (Premium)

The deployment pipeline feature in Power BI manages content in dashboards, reports, and datasets between different environments in the development life cycle. With this feature, you can develop and test Power BI content in one centralized location and streamline the process before deploying the final content to your users. This Power BI Premium feature requires you to be a Capacity admin.

The advantages of using the deployment pipeline are:

- **Increased productivity** - Through this feature, you can reuse previous deployment pipelines, ensuring that efforts aren't duplicated.
- **Faster delivery of content** - Report development becomes more streamlined, meaning that it takes less time to get to production.
- **Lower human intervention required** - Having the ability to reuse deployment pipelines means a decreased chance of error associated with moving content from one environment to another.

Development environments

Typically, development and collaboration occur in different stages. Reports and dashboards are built in and iterated on a series of controlled stages, or environments, where several tasks occur:

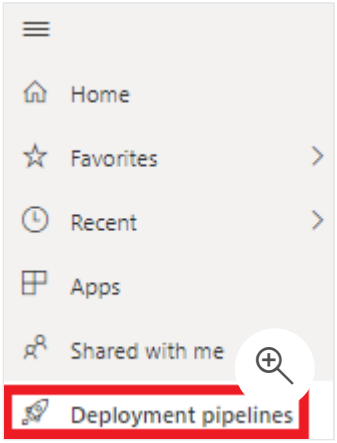
- **Development** - The location in which dashboard developers or data modelers can build new content with other developers. This stage is first in the deployment pipeline.
- **Test** - Where a small group of users and user acceptance testers can see and review new reports, provide feedback, and test the reports with larger datasets for bugs and data inconsistencies before it goes into production.
- **Production** - Where an expansive user audience can use tested reports that are reliable and accurate. This stage is the final one of the deployment pipeline.

You can choose which one of these development environments that you want to include in your deployment pipeline, according to your business needs. For example, you can choose to only include the Test and Production environments, if necessary.

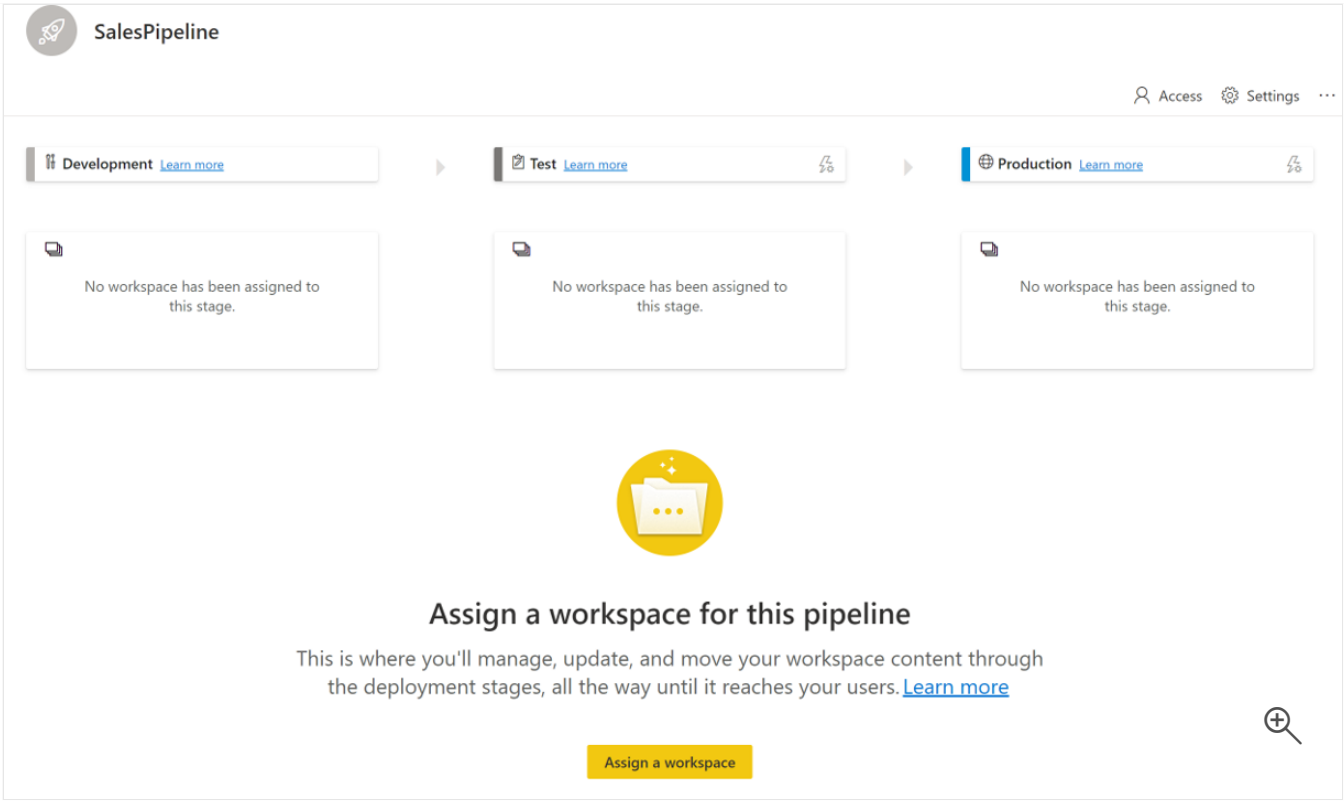
Configuration of deployment pipelines

In the scenario with Tailwind Traders, you want to create a deployment pipeline. To configure a deployment pipeline, go to Power BI service, and then follow these steps:

1. On the ribbon on the left side of the page, select **Deployment pipelines**, as shown in the following screenshot.



2. On the resulting page, select **Create a pipeline**.
3. Create a deployment pipeline called **SalesPipeline**. Enter the **Pipeline name** as **SalesPipeline** and enter a description, if necessary.
4. Select **Create**, which will take you to the following screen.

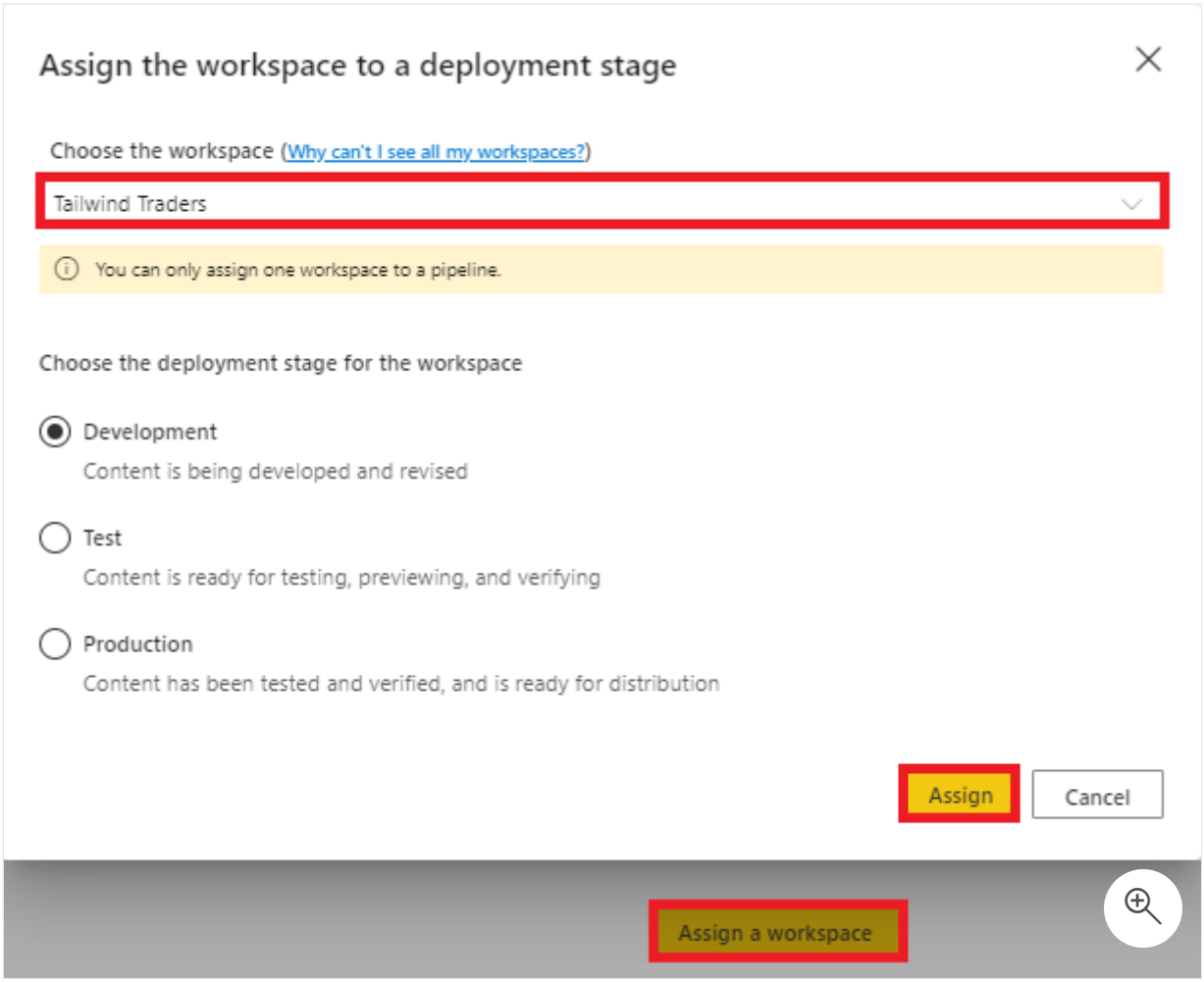


This view shows you the steps of the development life cycle: **Development**, **Test**, and **Production**.

5. To create your pipeline, assign workspaces to each of these stages to facilitate where your reports and dashboards will be housed during each stage.

6. Select **Assign a workspace** to begin.

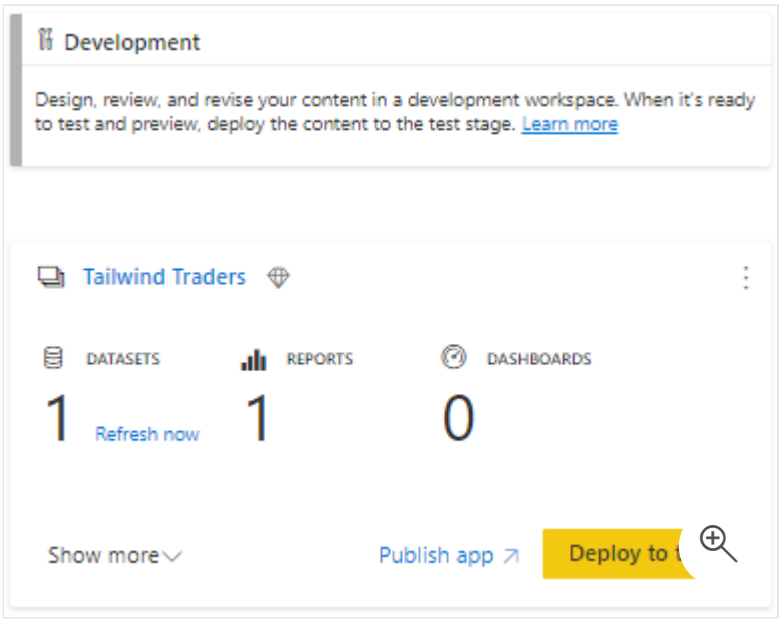
7. You will be directed to the **Assign the workspace to a deployment stage** window, where you can add the **Tailwind Traders** workspace to the **Development** environment.



Only workspaces that are assigned to a Premium capacity will appear. Additionally, you can only assign a single workspace to each pipeline. Power BI will auto generate the two other workspaces that are used in the pipeline.

8. If you already have **Development**, **Test**, and **Production** workspaces, choose one that you want to work with and then select **Assign**.

If this step is successful, you should see the resulting view.



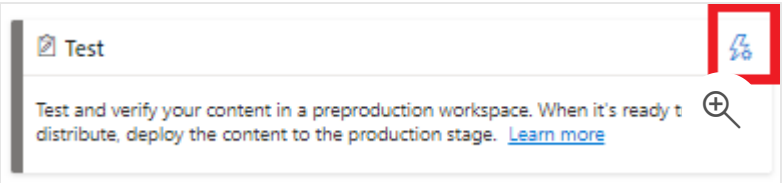
The preceding image shows how many datasets, reports, and dashboards that you have in the current **Development** environment. At every stage, you have the option to publish the associated workspace as an app by selecting **Publish app**.

9. To view all objects that constitute the workspace, select **Show more**.

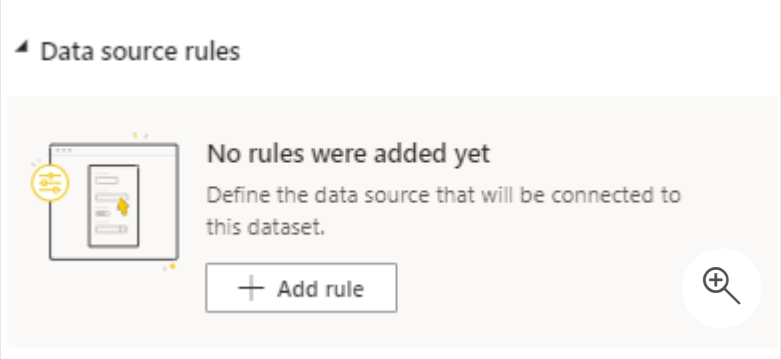
Testing stage

After you have collaborated with the teams and built a testing-ready report, you are ready to proceed to the testing phase. Select **Deploy to test**, which will create a new workspace. This workspace, by default, has the same name as the initial workspace but includes the **[Test]** suffix. You can change the name by entering the workspace's settings within the deployment pipeline interface.

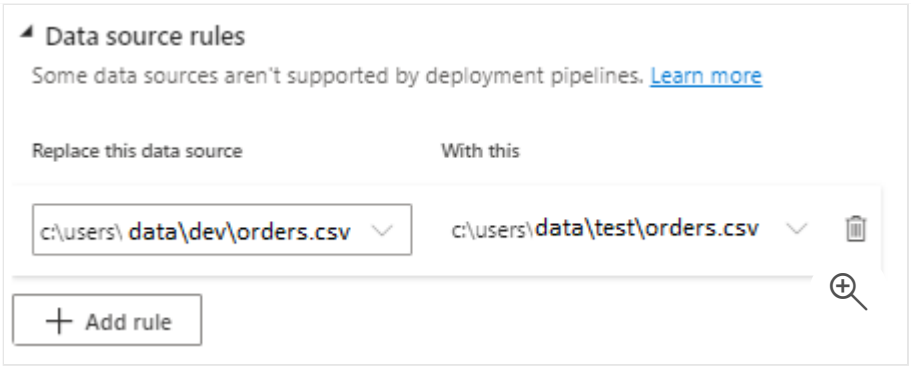
Testing should emulate conditions that objects will experience after they've been deployed for users. Therefore, Power BI allows you to change the source of data that is used during testing. To accomplish this task, you will first need to enter the environment's deployment settings by selecting the lightning icon, as shown in the following screenshot.



In the resulting **Settings** window, select the correct dataset. In this example, you want the **OrdersFigures** dataset to be used for testing but with a different data source. To accomplish this task, create parameters in Power Query Parameters (which will be discussed in a later module) or add a new rule, which is the process that is used for this example. Under the **Data source rules** drop-down menu, select **+ Add rule**.

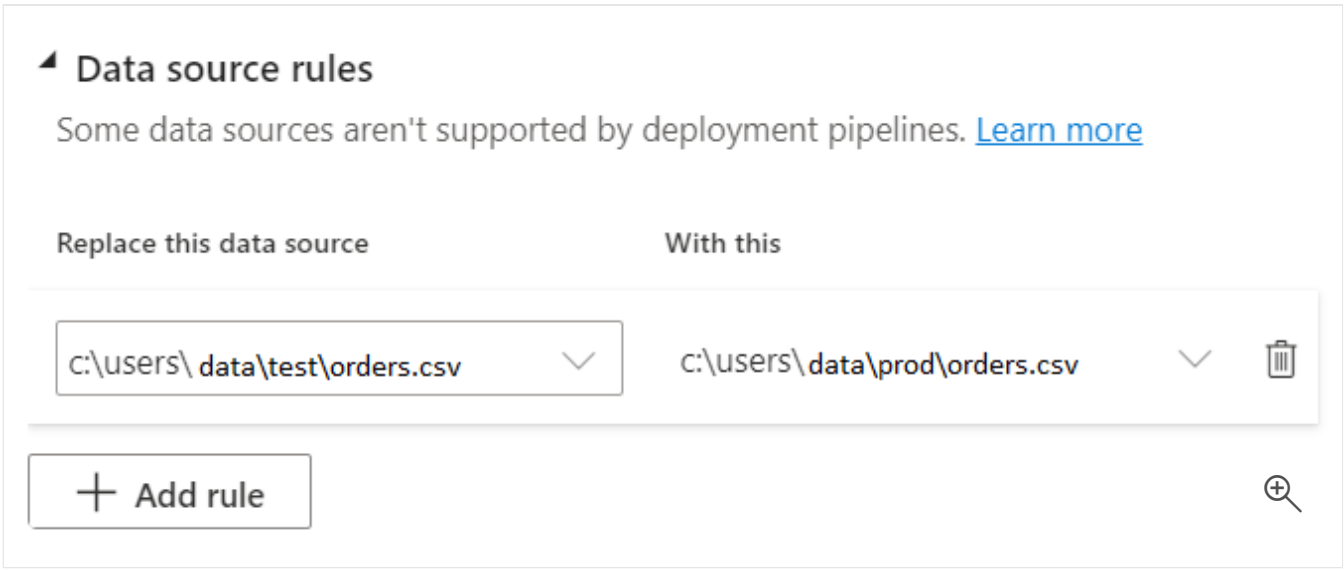


On the **Data source rules** section, you can change the data source (which was used in development) to a new source, which is used for testing the reports (**orders.csv** in the following example). When you are finished, select **Save** at the bottom of the card.

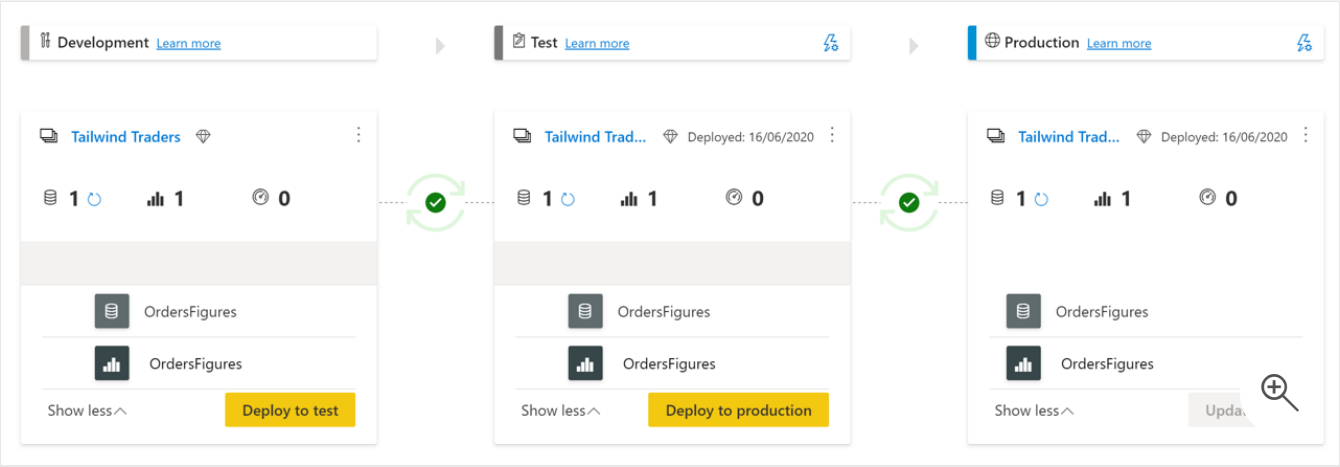


Production stage

Now, you are close to completing the pipeline, transitioning from development to testing, and finally to production. At this stage, you need to create a data source rule for the **OrdersFigures** dataset in the workspace to ensure that you are using production data. In this instance, you will be changing your source from the test to the production folder version of the orders.csv file, as shown in the following screenshot.



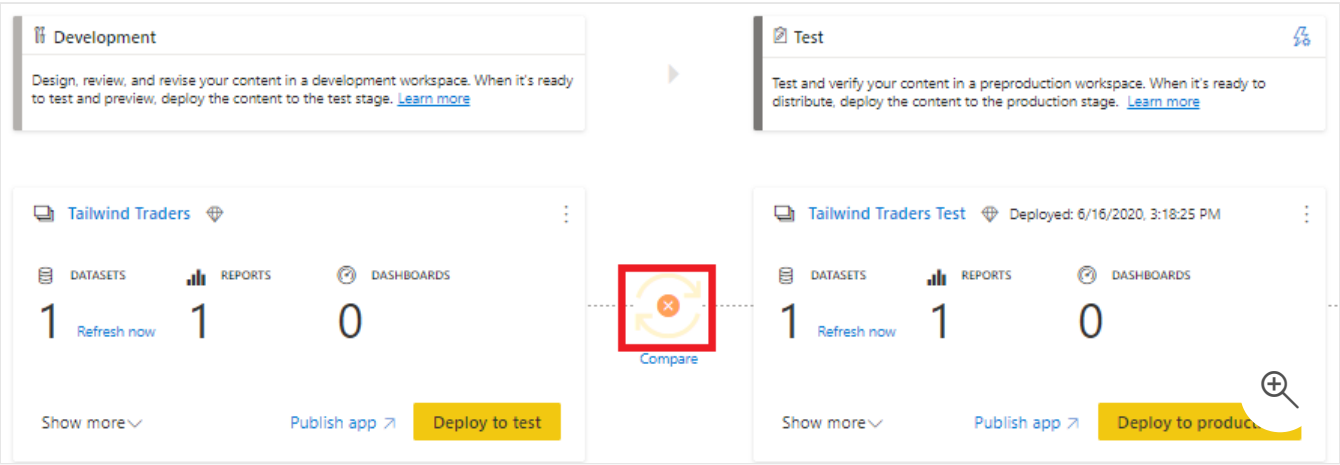
After performing a dataset refresh, your production workspace will be ready. You can package the workspace as an app, which is available for users. Currently, your deployment pipeline will appear as shown in the following figure.



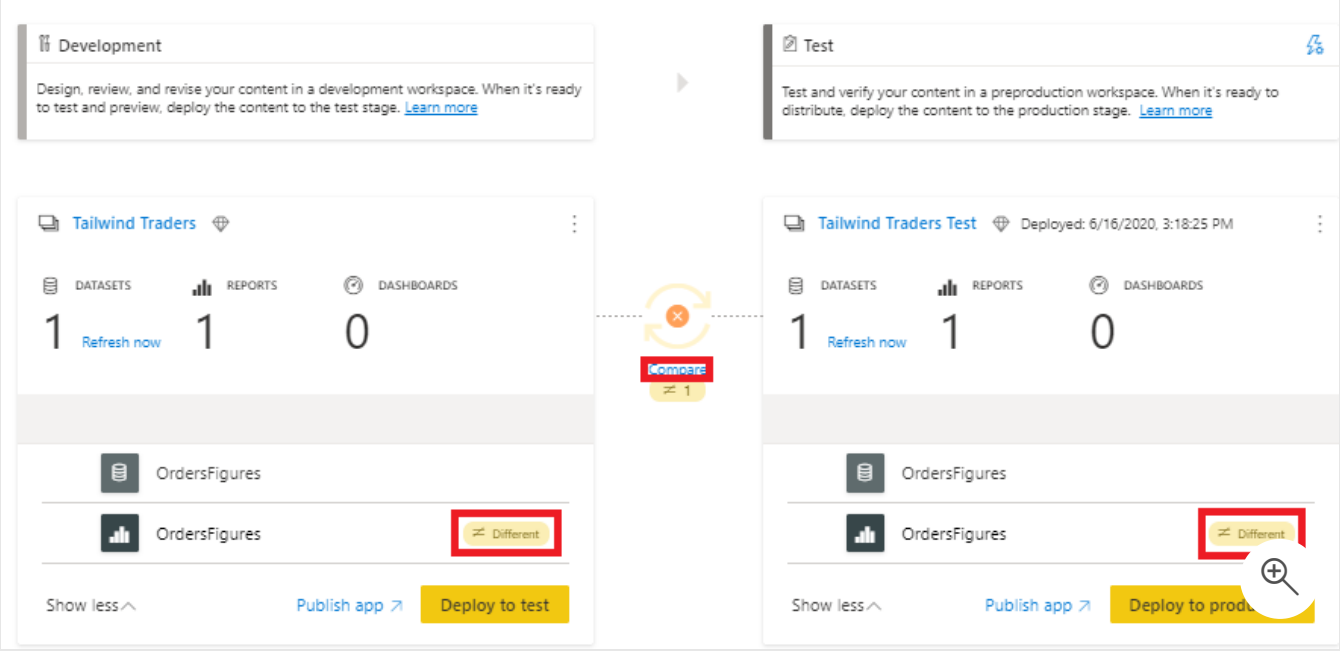
You have successfully created a deployment pipeline from the development to the testing phase. The following section describes additional operations that you can conduct in the development pipeline.

Additional operations in the development pipeline

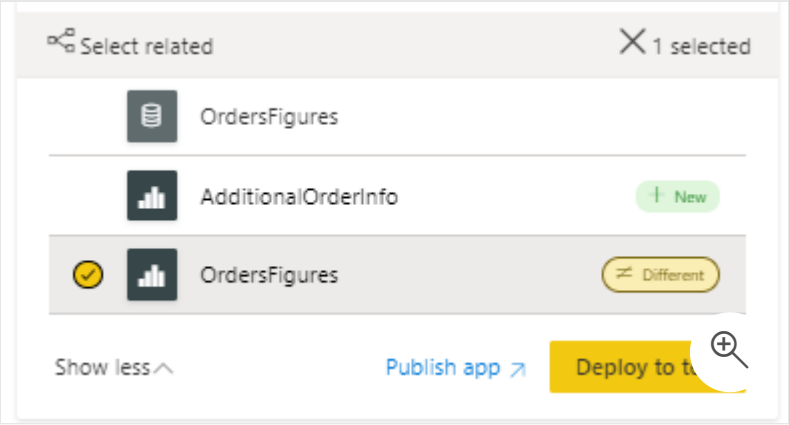
You have created a deployment pipeline and have begun collaborating with other report developers. You receive notification that one of the other developers has modified a report. To see the changes to this report, select the **Compare** button, as shown in the following screenshot.



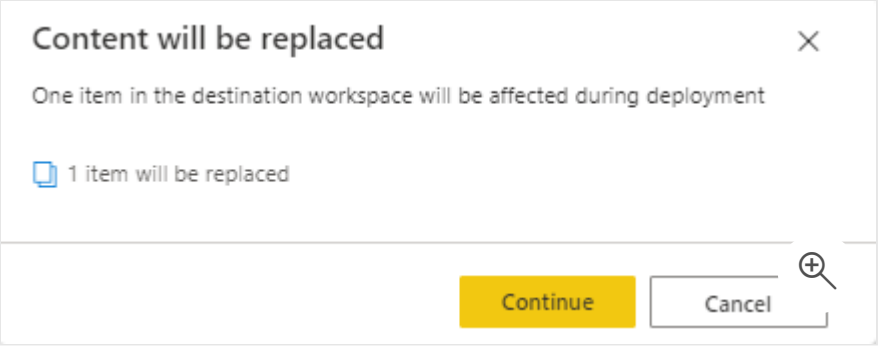
Selecting **Compare** reveals that the **OrdersFigures** report differs between the Development and Test environments.



The difference is typically registered as added or removed objects. If you decide that the changes shouldn't be deployed to the next phase, you can choose to ignore the changes. For instance, the other developer has added a report called **AdditionalOrderInfo** in the Development environment, but you don't want to deploy these changes. By selecting a specific report and then selecting **Deploy to test**, you can effectively choose which reports that you want to move from environment to environment, as shown in the following figure.



As the following message indicates, only one change will be carried over.



Exercise caution with this tool. Reports are dependent on their datasets. If a dataset has changed, but you don't deploy it with an associated report, the report will not behave

correctly.

We recommend that you use deployment pipelines in Power BI service. This tool ensures that the development life cycle is streamlined and that you can create one centralized location to collaborate, keep track of, and deploy your reports.

For more information, see Deployment Pipelines Best Practices.

Next unit: Troubleshoot data by viewing its lineage

Continue >

How are we doing? ☆ ☆ ☆ ☆ ☆

100 XP

Troubleshoot data by viewing its lineage

6 minutes

The **Lineage** view feature in Power BI allows you to quickly refresh datasets and see the relationships between the artifacts in a workspace and their external dependencies.

Consider this module's continuing scenario with Tailwind Traders as an example. Thus far, you've developed several reports and have published them to the Tailwind workspace. However, because you are also collaborating with the Products team, it has become increasingly difficult to track which reports need to be refreshed and which datasets are in which report. Consequently, you want the ability to determine which datasets need to be refreshed because you've been receiving reports of stale data. The path of data from its source to the destination can often be a considerable challenge, more so if you have multiple datasets.

The **Lineage** view feature can help you accomplish this task efficiently and almost effortlessly.

Data lineage

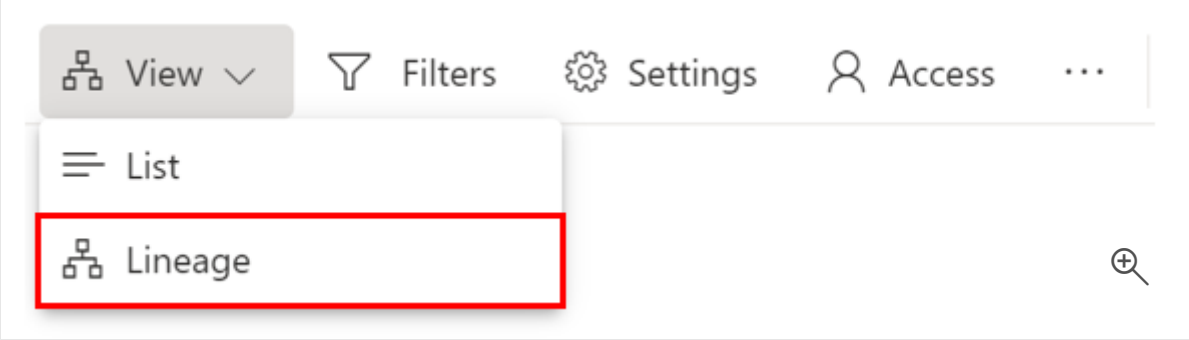
Data lineage refers to the path that data takes from the data source to the destination.

The **Lineage** view feature in Power BI is crucial because it:

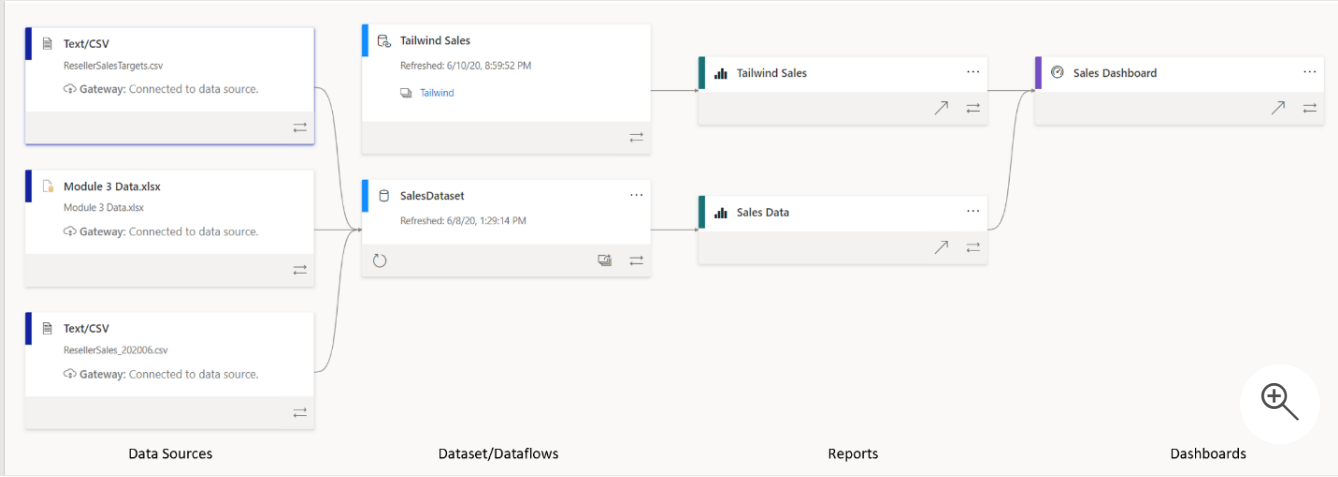
- Simplifies the troubleshooting process because you can see the path that the data takes from source to destination and determine pain points and bottlenecks.
- Allows you to manage your workspaces and observe the impact of a single change in one dataset to reports and dashboards.
- Saves time by simplifying your task of identifying reports and dashboards that haven't been refreshed.

Use the Lineage view

The **Lineage** view is only accessible to **Admin**, **Contributor**, and **Member** roles. Additionally, it requires a Power BI Pro license and is only available for app workspaces. To access the **Lineage** view, go to the workspace, and then select **Lineage** from the **View** drop-down menu on the top ribbon.



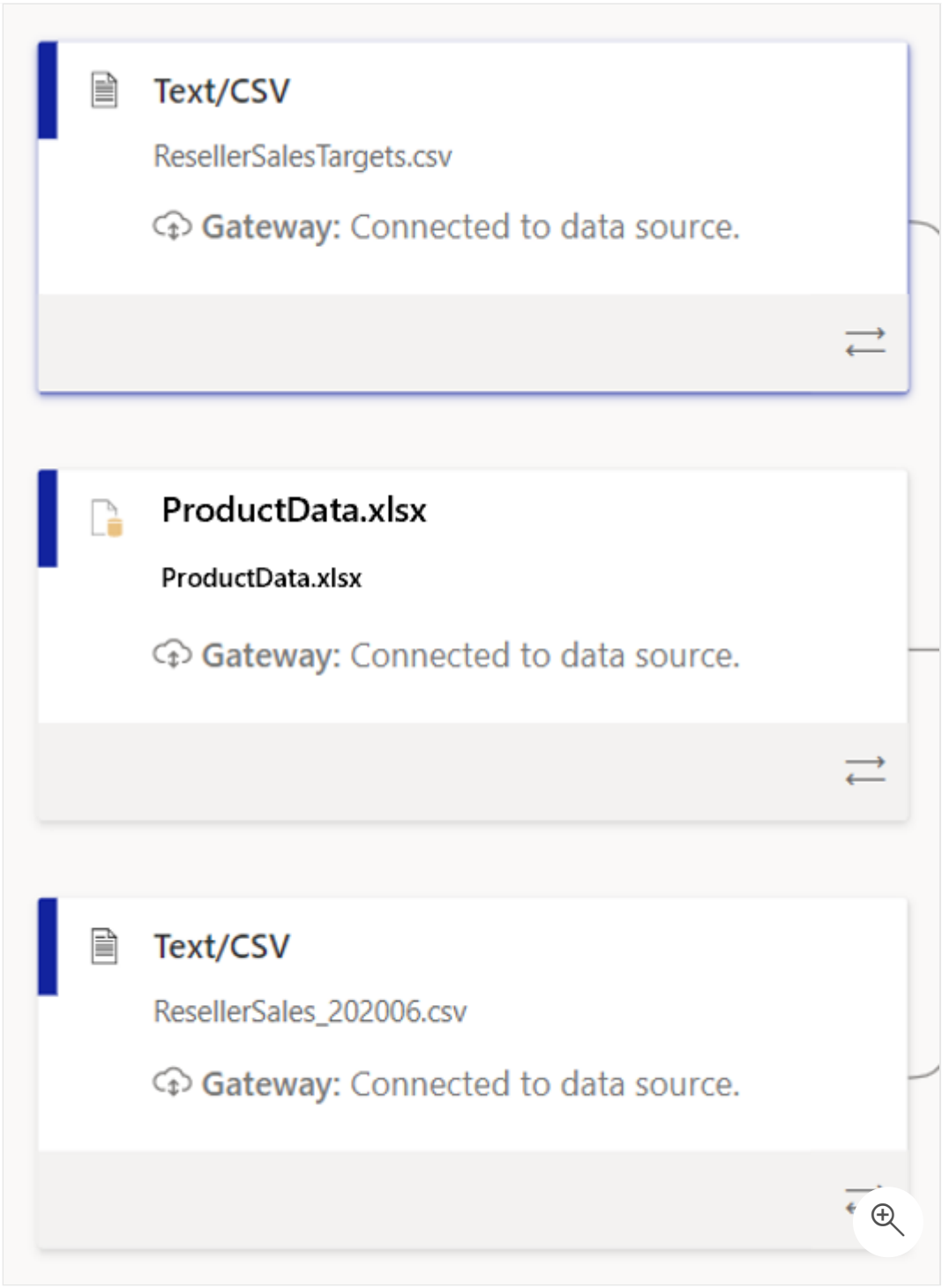
When the view canvas opens, you can begin to explore this view. The following example shown an excerpt of the data lineage for the **Tailwind Sales** workspace.



This view shows all the artifacts in your workspace. Artifacts include data sources, datasets and dataflows, reports, and dashboards. Each card represents an artifact, and the arrows in between these cards represent the flow of data or the relationship between different artifacts. By following the arrows from left to right, you can observe the flow of data from the source to the destination, which will often be a dashboard. Typically, the flow would be **data sources** > **datasets/dataflows** > **reports** > **dashboards**.

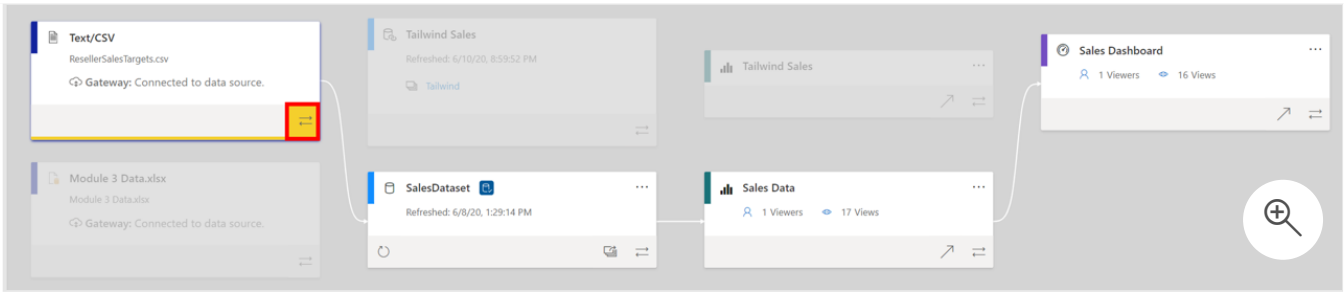
Data sources

Each of the following cards is a data source that is used in your workspace.



The card tells you the type of data source (for example, **Text/CSV**) and the **Gateway**, which tells you the source of your data. If you are connected to the data through an on-premises data gateway, this card will tell you more information about the gateway. Additionally, if you double-click the card, you will get more details about the data source, such as the file path and the connection status.

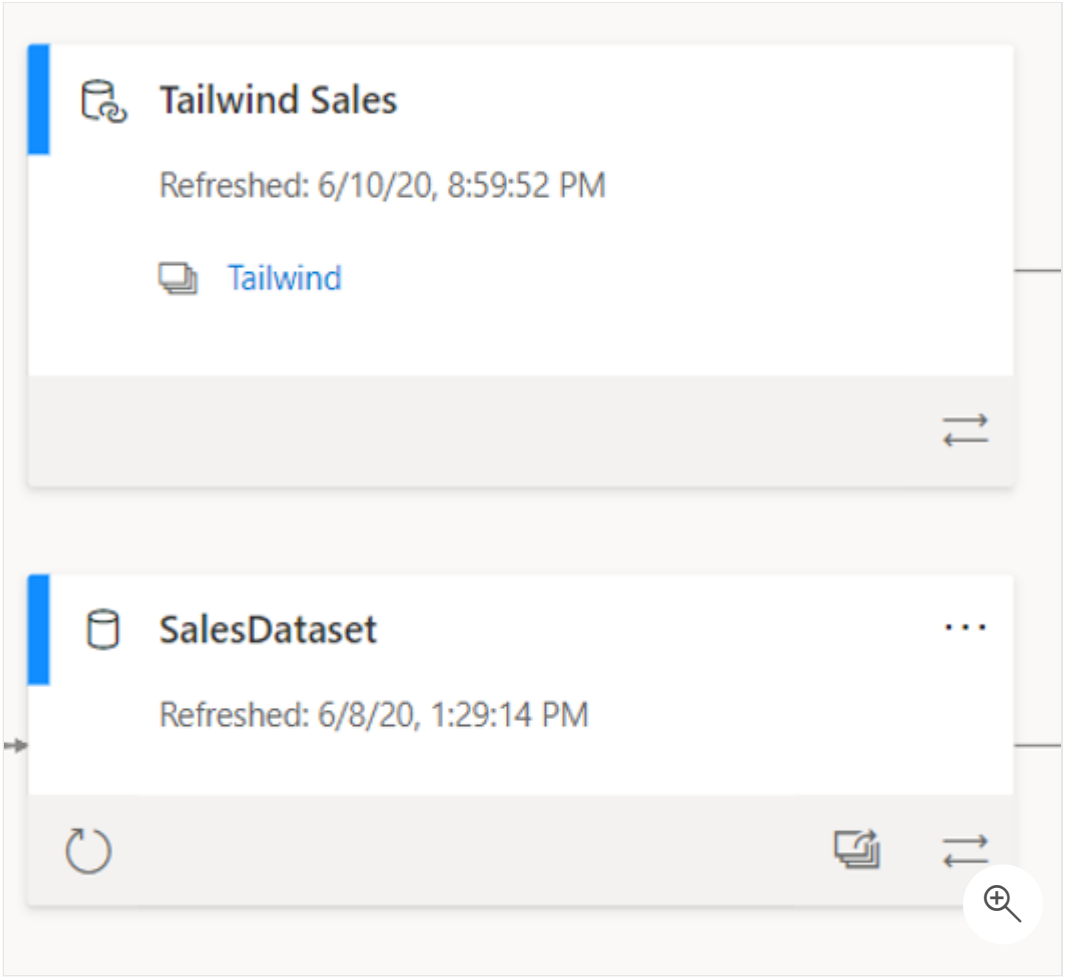
Selecting the lower-right icon on the card will highlight the path from the data source to the destination, as shown in the following screenshot, which clarifies the exact path that the data takes.



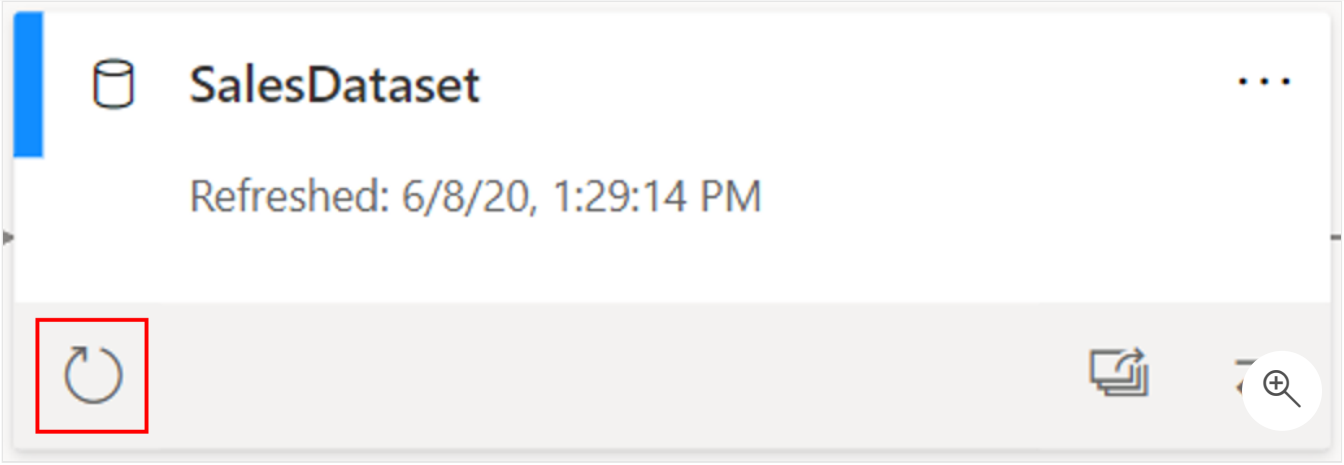
Next are the datasets/dataflows, which are marked in blue.

Datasets/dataflows

Often, datasets and dataflows can connect to external data sources, such as SQL Server, or to external datasets in other workspaces. The following examples show dataset and dataflow cards on the **Lineage** view.



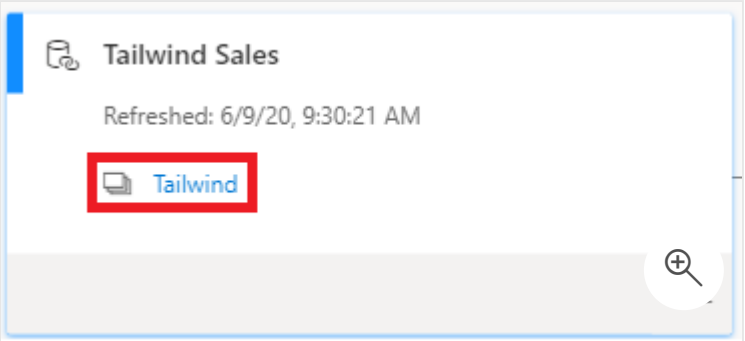
The **Lineage** view uses arrows to connect objects, such as datasets, with their data sources. On these cards, you can see when the dataset was last refreshed, and you can refresh the dataset by selecting the arrow icon on the lower-left corner of the card, as shown in the following screenshot.



This component is a powerful troubleshooting feature that helps ensure that your dataset refreshes are quick and uncomplicated.

Returning to the initial quandary with Tailwind Traders, you wanted to determine if the company had stale datasets and then quickly refresh the data. By using the **Lineage** view feature, you can go through the different datasets in one view and then use the **Refresh data** button to refresh datasets that you determine as stale.

Additionally, if a dataset or dataflow belongs to a different workspace (in this case, the **Tailwind** workspace), it will be indicated on the card, as shown in the following screenshot.



By double-clicking on any card, you can view the metadata, such as the sensitivity, by whom it was configured, the last refresh date, and the names and count of tables within this dataset, as shown in the following figure.

SalesDataset

Sensitivity --

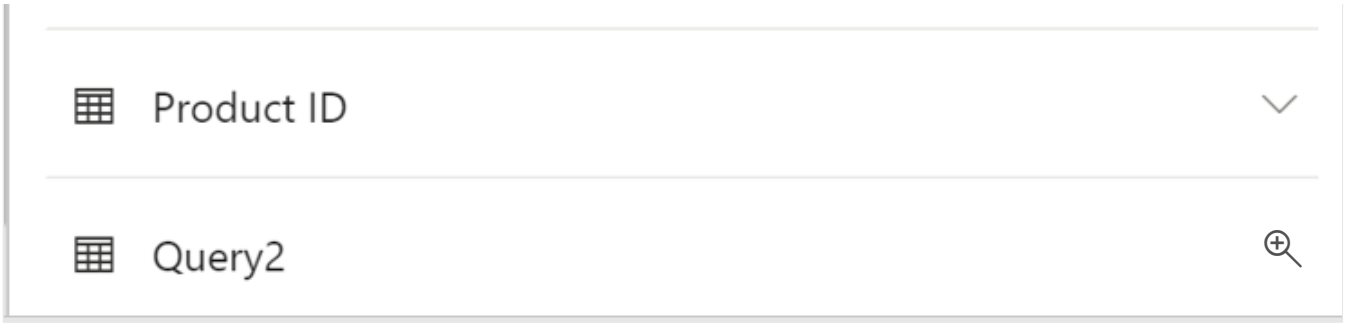
Configured by

Refreshed 6/8/20, 1:29:14 PM

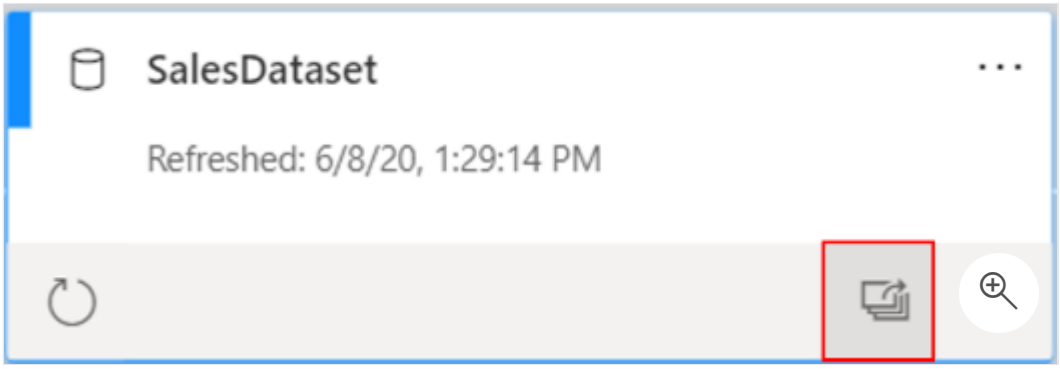
Next refresh --

Total Tables 17

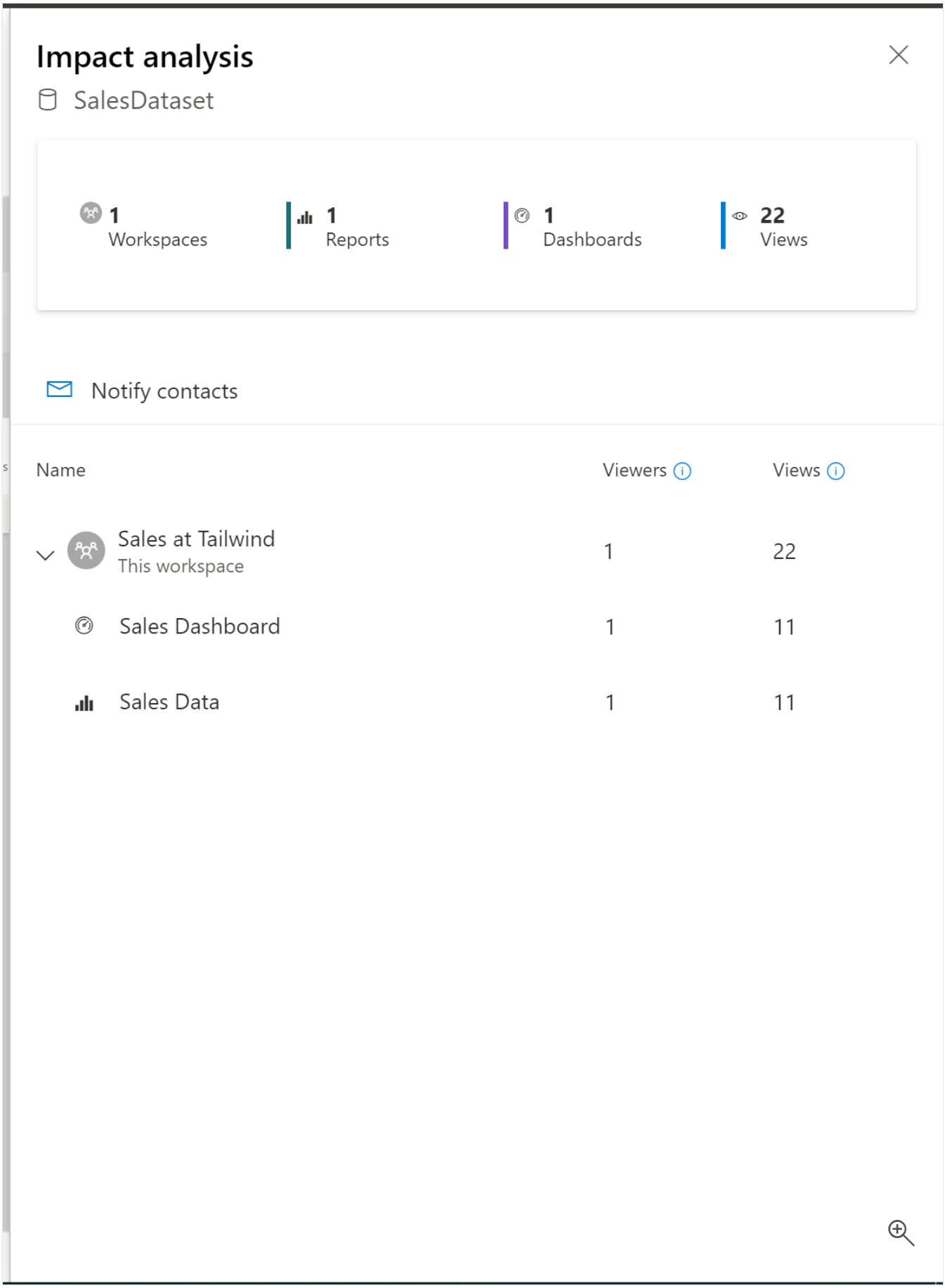
- Budget
- Calendar
- Country
- CountryName
- Customers
- Emp
- Employee
- Order
- Product



You can also view the impact of this dataset across workspaces. By selecting the overlapping window icon on the lower-right corner of a dataset card, you can determine the impact analysis of the dataset.



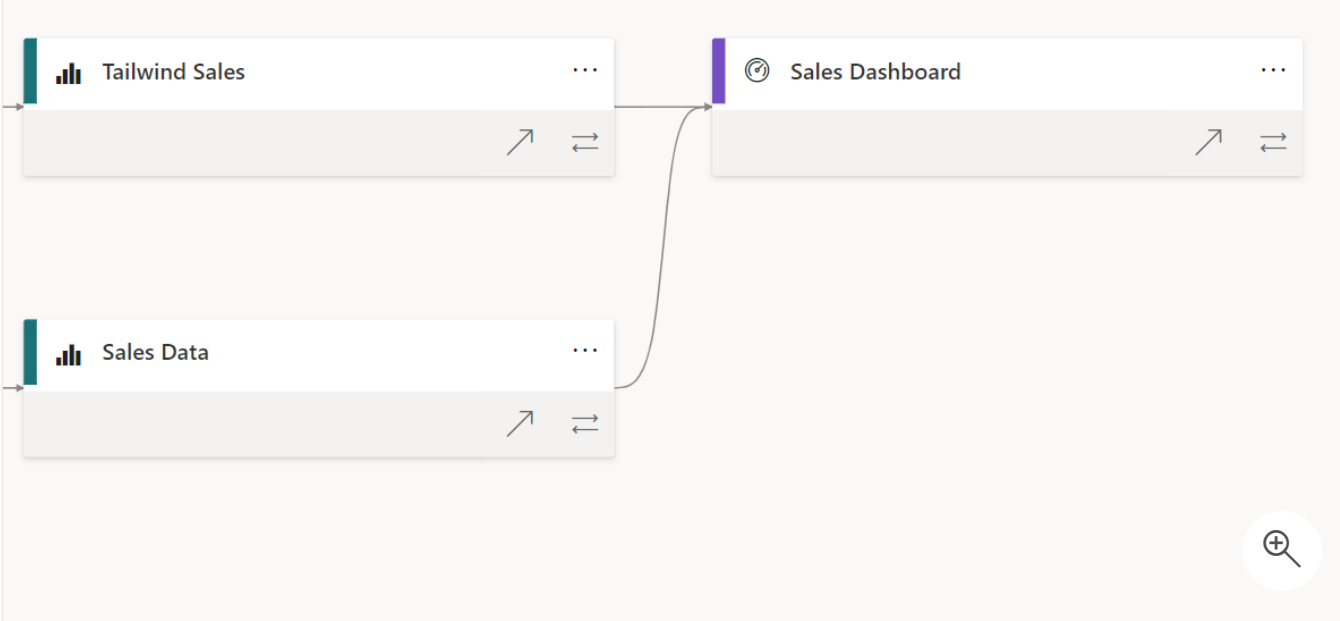
On the **Impact analysis** window, you can see how many workspaces, reports, and dashboards that this dataset is a part of and how many views that this dataset has gathered, as shown in the following screenshot.



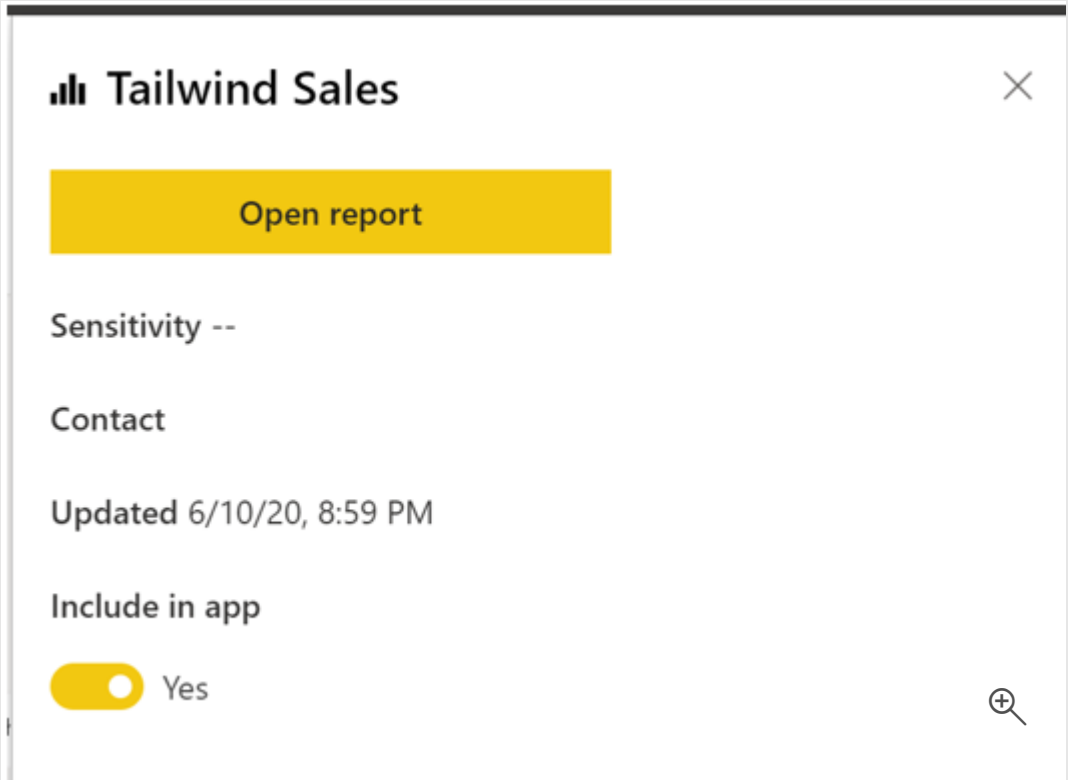
The bottom of the **Impact Analysis** window includes more detail about which specific reports and dashboards that this dataset is part of. Additionally, you can select **Notify contacts**, which allows you to notify dataset owners (or any other user) of changes in the dataset. Impact analysis is useful because it allows you to pinpoint datasets that aren't being used or looked at.

Reports and dashboards

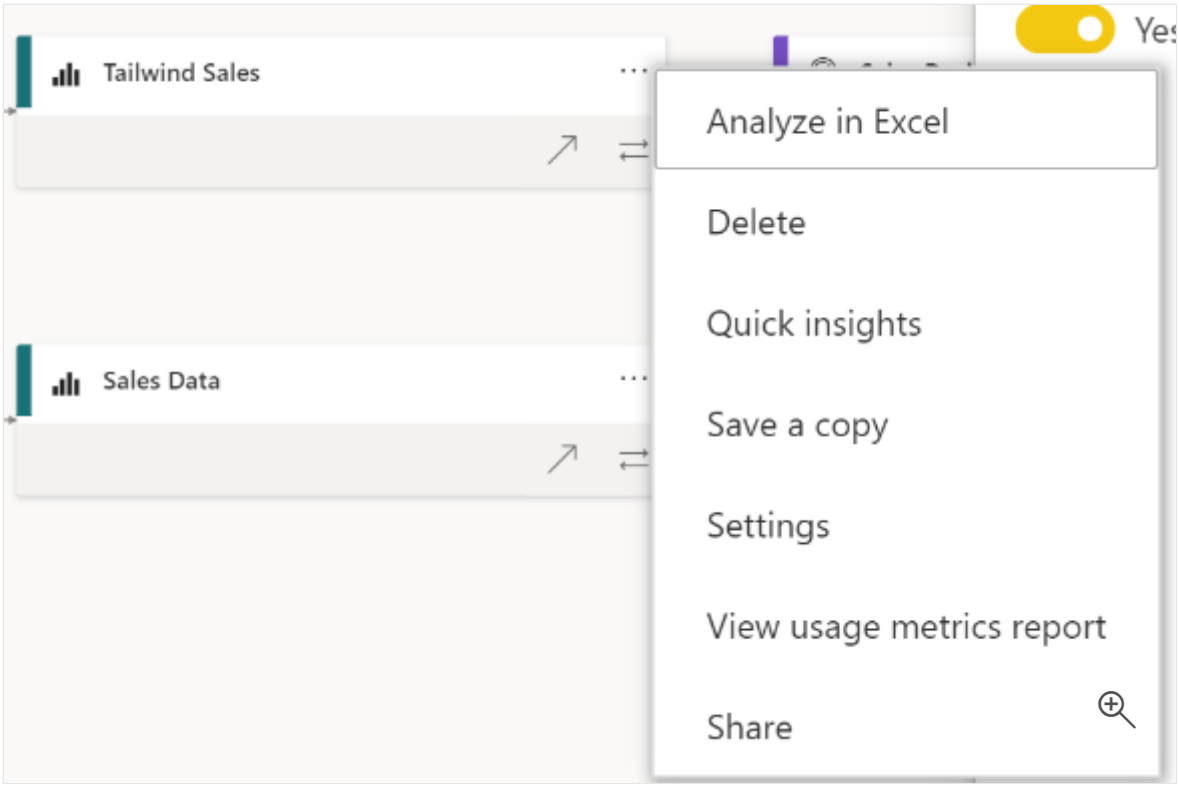
The reports and dashboards cards have similar functionality as the data source and dataset cards.



Selecting a card will bring up a window in which you can view the metadata about the report or dashboard. In this window, you can also go directly to the report or dashboard. You can also enable or disable whether you want to include this report or dashboard within the app.



This card also contains useful options under the ellipsis (...), as shown in the following figure. From this menu, you can select to analyze the report in Microsoft Excel, delete a report, create Quick Insights, save a copy to a workspace, and more.



Now that you have had an in-depth look into the **Lineage** view in Power BI, you can commence with cleaning up the Tailwind Traders workspace. For more information, see Data Lineage.

Next unit: Configure data protection

Continue >

How are we doing? ☆ ☆ ☆ ☆ ☆

100 XP

Configure data protection

2 minutes

As enterprises grow, so does their data. Often, strict requirements and regulations must be applied to ensure that this sensitive data is secure. Power BI provides a few different ways to help you accomplish this task:

- Use Microsoft sensitivity labels to label dashboards, reports, datasets, and dataflows by using the same taxonomy that is used to classify and protect files in Microsoft 365.
- Add more protection measures such as encryption and watermarks when you are exporting the data.
- Use Microsoft Cloud App Security to monitor and investigate activities in Power BI.

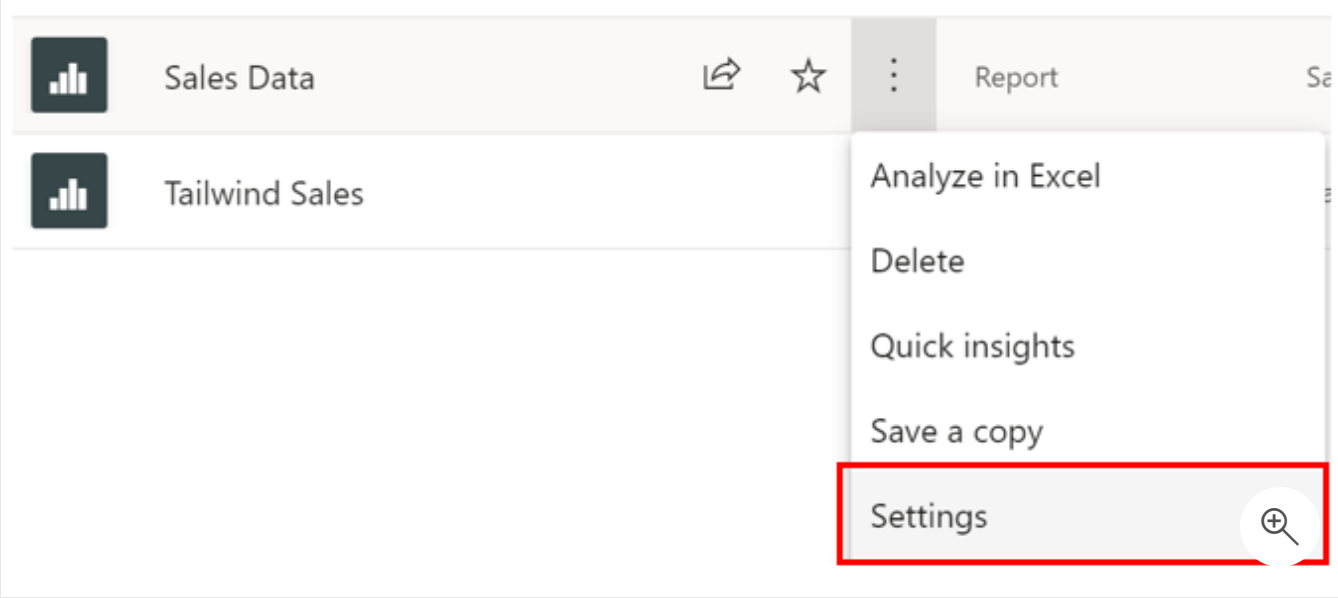
To continue with the module scenario, as more reports and dashboards are increasingly added to the Tailwind Traders workspace, the Sales team becomes concerned as they realize the urgency of securing their data. The team is concerned about the possibility of new users exporting data without permission. The Sales team doesn't want to roll back reports or dashboards, so they have asked you to implement comprehensive security measures that protect data access within and outside of Power BI. You can complete this task by configuring data protection labels in Power BI.

Before you begin, ensure that you have the appropriate licensing, as shown here.

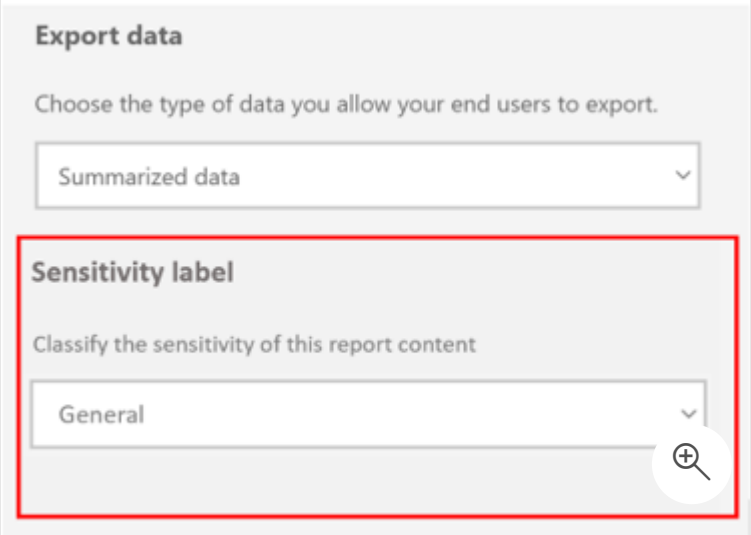
Sensitivity labels

Sensitivity labels specify which data can be exported. These labels are configured externally to Power BI, and Power BI allows you to quickly use them in your reports and dashboards. These labels allow you to define and protect content, even outside of Power BI. Datasets, dataflows, reports, and dashboards can use this mechanism, and all users in your corporation can use this feature unless exceptions have been defined.

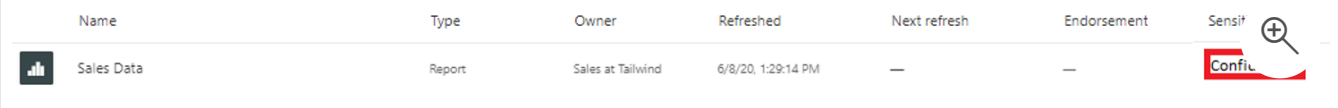
After you have verified your ability to add labels, go to any workspace and choose an object to secure. For this example, you will add a sensitivity label to **Sales Data** by going to the workspace and, under the ellipsis (**...**), selecting **Settings**.



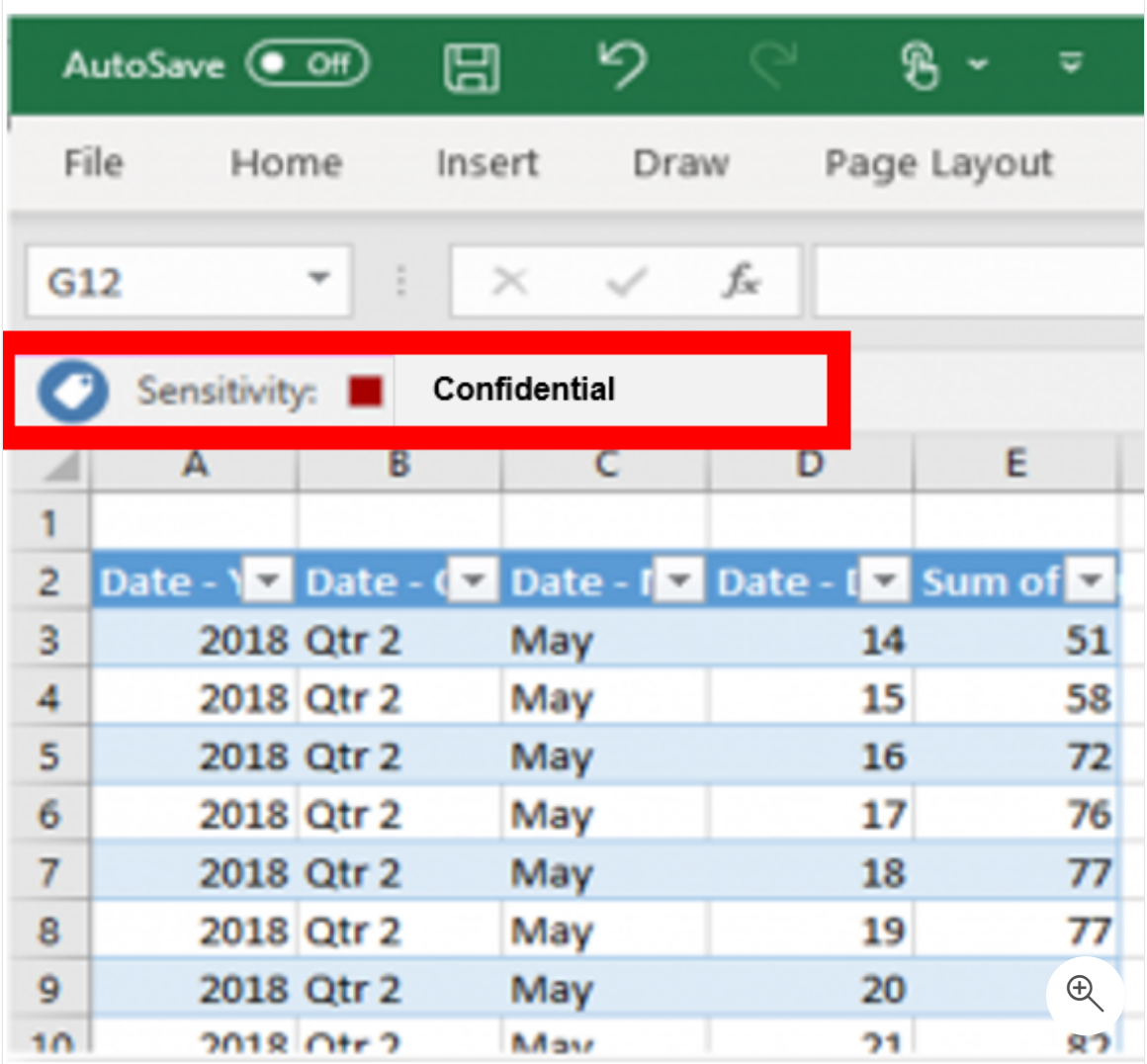
This selection will take you to a window, where you can assign a sensitivity label to your data. For this example, the following labels have been externally configured, so you can now apply them to the data: **None**, **Personal**, **General**, **Confidential**, and **Highly confidential**. You can also go to Microsoft 365 Security Center to define your own labels.



For example, if you want to assign a **Confidential** label to your **Sales Data** report, when you change this label on the **Settings** pane, it will appear as a label on the report, as shown in the following figure.



This factor is crucial when you are exporting data. Data that is exported to Microsoft Excel, Microsoft PowerPoint, and PDF files will have sensitivity labels enforced. For instance, if you wanted to export data from **Sales Data** into an Excel file, if you are an authorized user, you will see the following Excel view when you export into Excel.



However, if you didn't have established permissions, you would be denied access to see the data. This verification ensures that only appropriate users have access to view the data, which helps make sure that your data is secured.

For more information, see Apply Data Sensitivity Labels in Power BI.

Next unit: Check your knowledge

Continue >

How are we doing? ☆ ☆ ☆ ☆ ☆

200 XP

Check your knowledge

3 minutes

Answer the following questions to see what you've learned.

1. How is the Admin workspace role different from other types of workspace roles? *

- Admin is the only role that can remove any users.

✔ **Only Admins can add and remove users from a workspace.**

- Admin is the only role that can publish or update apps.
- Admin is the only role that can create, edit, or delete content in a workspace.
- Admin is the only role that can publish content to a workspace.

2. Which one of the following options is the best description of a workspace? *

- A workspace is a feature in Power BI service that allows you to view reports only.
- A workspace is a feature of Power BI Desktop that allows you to build reports only.
- A workspace is a centralized location or repository that allows you to collaborate with colleagues and teams to create collections of reports, dashboards, and so on.

✔ **A workspace is a centralized location or repository that allows you to collaborate with colleagues and teams to create collections of reports, dashboards, and so on.**

- A workspace is a feature that allows you to view and edit the data model, build visualizations, and transform the data.

3. What feature in Power BI service can you use to troubleshoot the flow of data from its source to its destination? *

- Usage Metrics report

✗ Lineage view allows you to view and troubleshoot the data flow from source to destination.

- ○ Query Caching
- ○ Quick Insights
- ○ Lineage view

✓ Lineage view allows you to view and troubleshoot the data flow from source to destination.

Next unit: Summary

Continue >

How are we doing? ☆ ☆ ☆ ☆ ☆

100 XP

Introduction

2 minutes

When your datasets are published to your organization's workspace in Microsoft Power BI service, everyone who needs access to those datasets can find them in a central location, which provides opportunities for collaboration between teams. It also reduces the duplication of effort because one dataset can be used by multiple users for different business reasons. For instance, one dataset can be used to create multiple Power BI reports. Because preparing and cleaning data can be time-consuming, sharing datasets can be a productivity boost for report authors.

The sharing of datasets needs to be actively managed for optimal organizational performance. For example, you can automate the refresh process so that it becomes more efficient and users always have access to the latest data. You can also promote certain datasets over others so that users can clearly identify the best datasets to use.

Management of datasets also involves the implementation of parameters within those datasets to help with decision making and solving business problems. For example, you can use parameters to change the server or database name of your dataset or a file path for a data source. You can also use parameters to configure incremental refreshes of your data and to run "what-if" scenarios and conduct scenario-type analysis on the data.

Another key area of dataset management is setting up and maintaining a gateway so that you and other users can access your on-premises data source from the cloud. You also need to prepare for potential issues that might arise regarding this gateway, which could interrupt user access to the datasets. The effect of a service connectivity issue could be detrimental to user productivity; if they can't access the data, they can't do their jobs, and the organization's decision-making capability will be at a standstill. Being prepared to deal with such issues in a timely manner is critical.

For this module's scenario, you work as a Power BI developer for Tailwind Traders. You have created reports for multiple teams across the organization; however, your work is not yet completed. Report users have asked you to make the reports more dynamic so that they can filter the data themselves. Additionally, they want you to find a way for them to run what-if scenarios. Management has also requested that you help guarantee the coherency and integrity of your datasets. They want the datasets available in one place, for future use, and they want you to automate the refresh process to ensure that the data is kept up to date.

By the end of this module, you'll be able to:

- Create dynamic reports with parameters.
- Create what-if parameters.
- Use a Power BI gateway to connect to on-premises data sources.
- Configure a scheduled refresh for a dataset.
- Configure incremental refresh settings.
- Manage and promote datasets.
- Troubleshoot service connectivity.
- Boost performance with query caching (Premium).

Next unit: Use a Power BI gateway to connect to on-premises data sources

Continue >

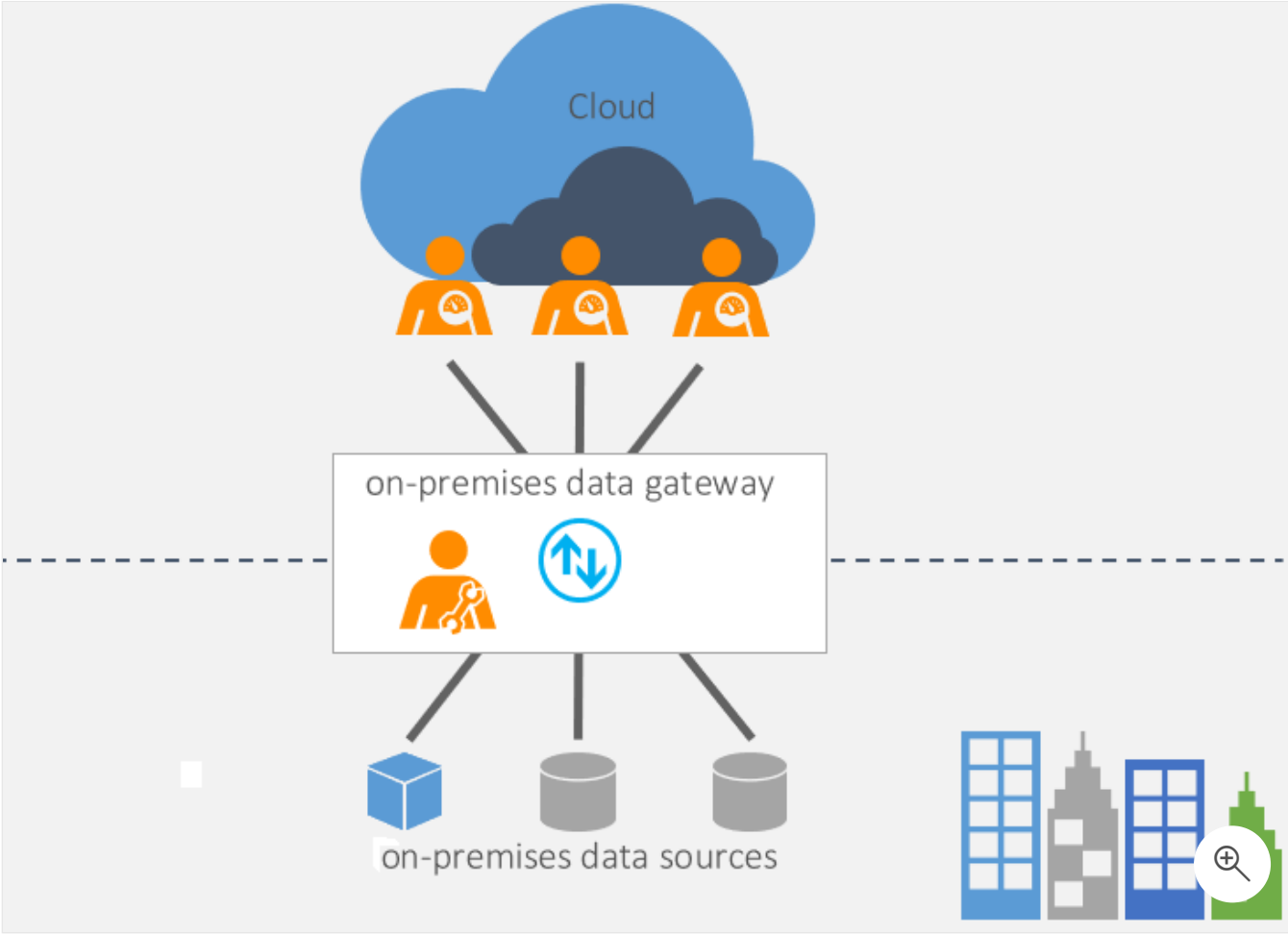
100 XP

Use a Power BI gateway to connect to on-premises data sources

2 minutes

Gateway software acts like a bridge; it allows organizations to retain databases and other data sources on their on-premises networks and access that on-premises data in cloud services, such as Power BI and Microsoft Azure Analysis Services.

A gateway facilitates quick, behind-the-scenes communication that flows from a user in the cloud to your on-premises data source and then back again to the cloud.



Two types of on-premises gateways are:

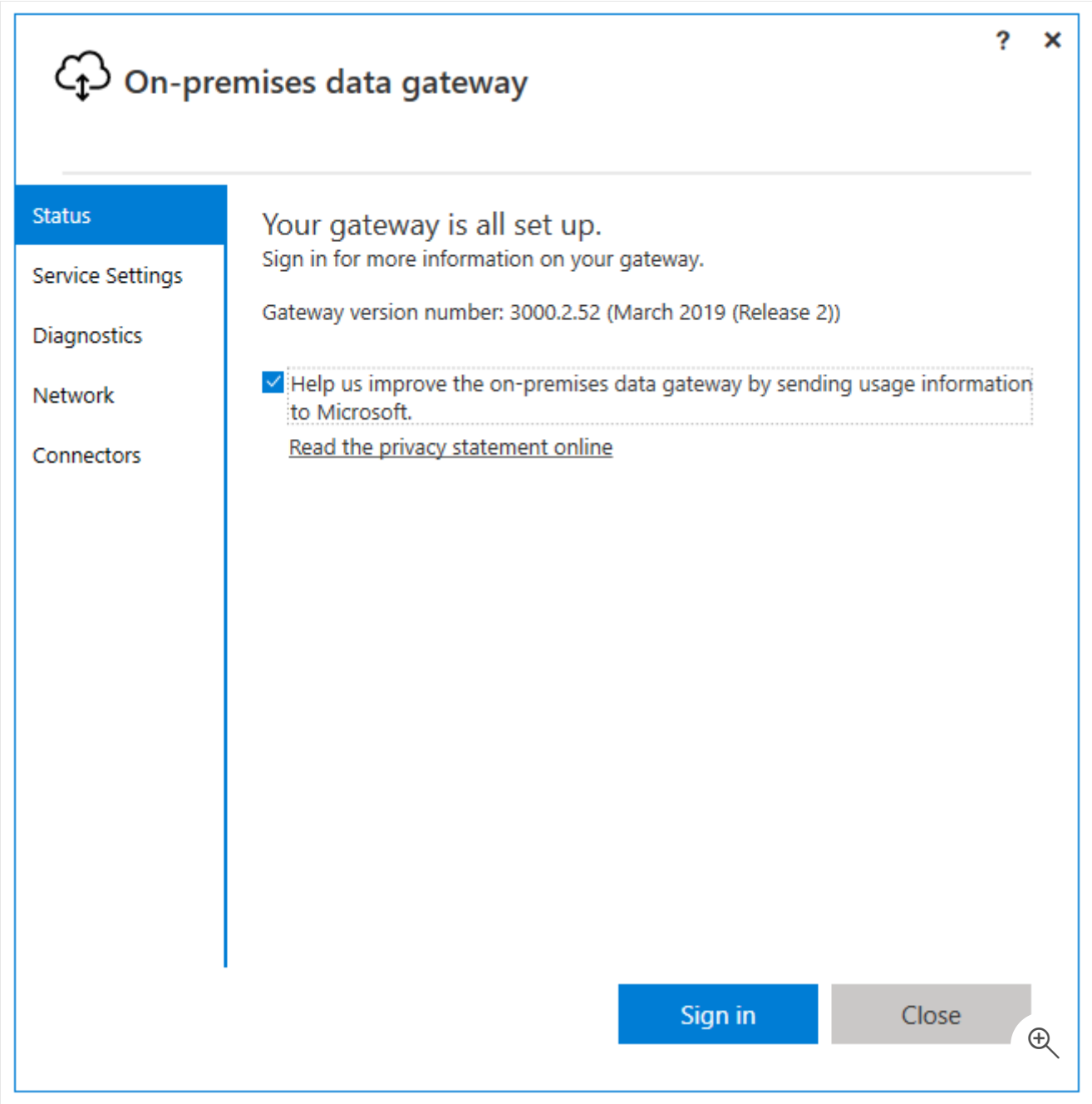
- **Organization mode** - Allows multiple users to connect to multiple on-premises data sources and is suitable for complex scenarios.
- **Personal mode** - Allows one user to connect to data sources. This type of gateway can be used only with Power BI and it can't be shared with other users, so it is suitable in

situations where you're the only one in your organization who creates reports. You will install the gateway on your local computer, which needs to stay online for the gateway to work.

Use an on-premises gateway

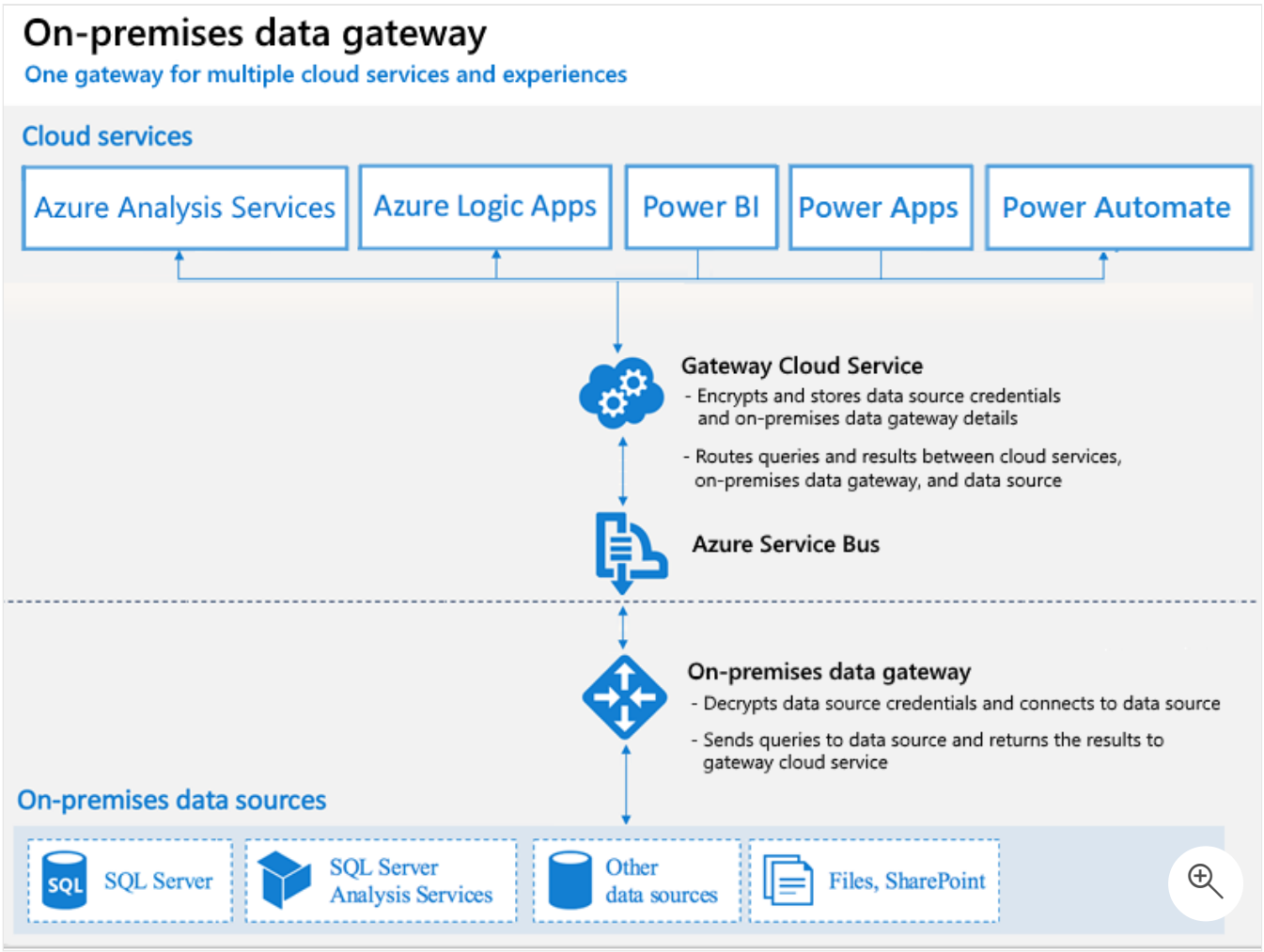
Before you can connect to your on-premises data source, you need to install the on-premises data gateway, and then configure it to suit your organizational needs. Usually, this task is completed by an admin in your organization.

When the on-premises gateway is installed and configured, you can start the gateway and then sign in by using your Microsoft 365 organization account.



When you are working in the cloud and interacting with an element that is connected to an on-premises data source, the following actions occur:

- The cloud service creates a query and the encrypted credentials for the on-premises data source. The query and credentials are sent to the gateway queue for processing.
- The gateway cloud service analyzes the query and pushes the request to Microsoft Azure Service Bus.
- Service Bus sends the pending requests to the gateway.
- The gateway gets the query, decrypts the credentials, and then connects to one or more data sources with those credentials.
- The gateway sends the query to the data source to be run.
- The results are sent from the data source back to the gateway and then to the cloud service. The service then uses the results.



Troubleshoot an on-premises data gateway

Troubleshooting a gateway is an ever-changing topic. Refer to the following documents for the latest troubleshooting guidance:

- To learn how to run a network port test, see Adjust communication settings for the on-premises data gateway.
- To get information on how to provide proxy information for your gateway, see Configure proxy settings for the on-premises data gateway.
- To find the current data center region that you're in, see Set the data center region.

Next unit: Configure a dataset scheduled refresh

Continue >

How are we doing? ☆ ☆ ☆ ☆ ☆

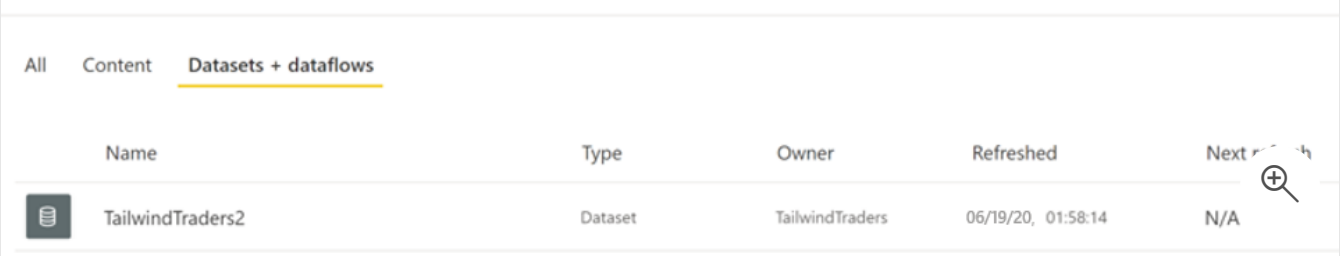
100 XP

Configure a dataset scheduled refresh

4 minutes

The **Scheduled refresh** feature in Power BI allows you to define the frequency and time slots to refresh a particular dataset. Scheduling the refresh of your data will save you time because you don't have to manually refresh the data. It also ensures that users can access the most up-to-date data.

In this example, you are creating a report, but then realize that the version of the sales data that you're using isn't the most up to date. You check the refresh status and notice that it was last refreshed 10 days ago, and no refresh is scheduled to take place.



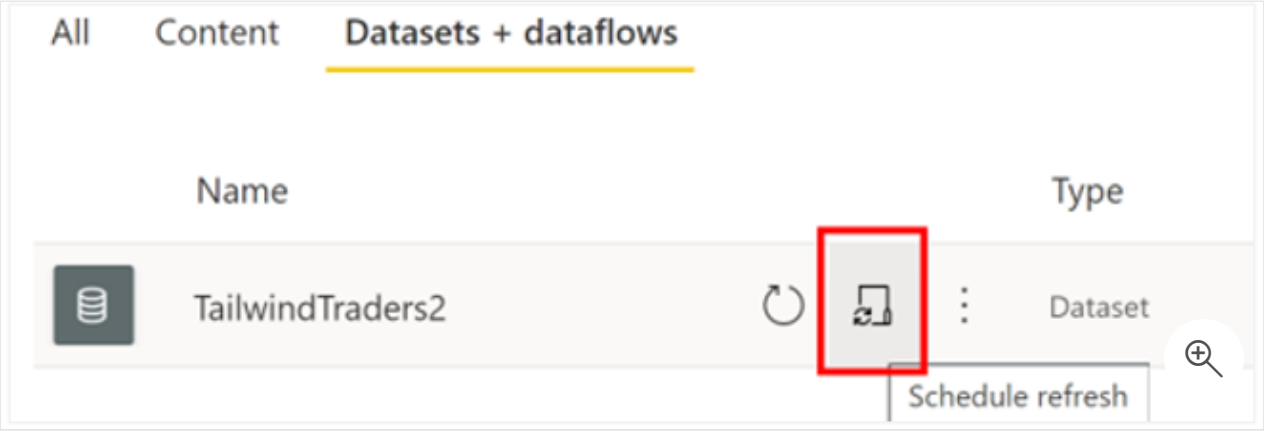
Considering how important it is to have accurate sales data, you need to find a solution. Usually, the data is updated weekly, but you don't want to return to the report every week to manually refresh the dataset, and you know that you occasionally forget to do so. Therefore, you decide to use the **Scheduled refresh** functionality in Power BI to solve this problem.

Set up a refresh schedule

Before you can set up a refresh schedule, you need to have created a gateway connection.

To set up a refresh schedule for your dataset, follow these steps:

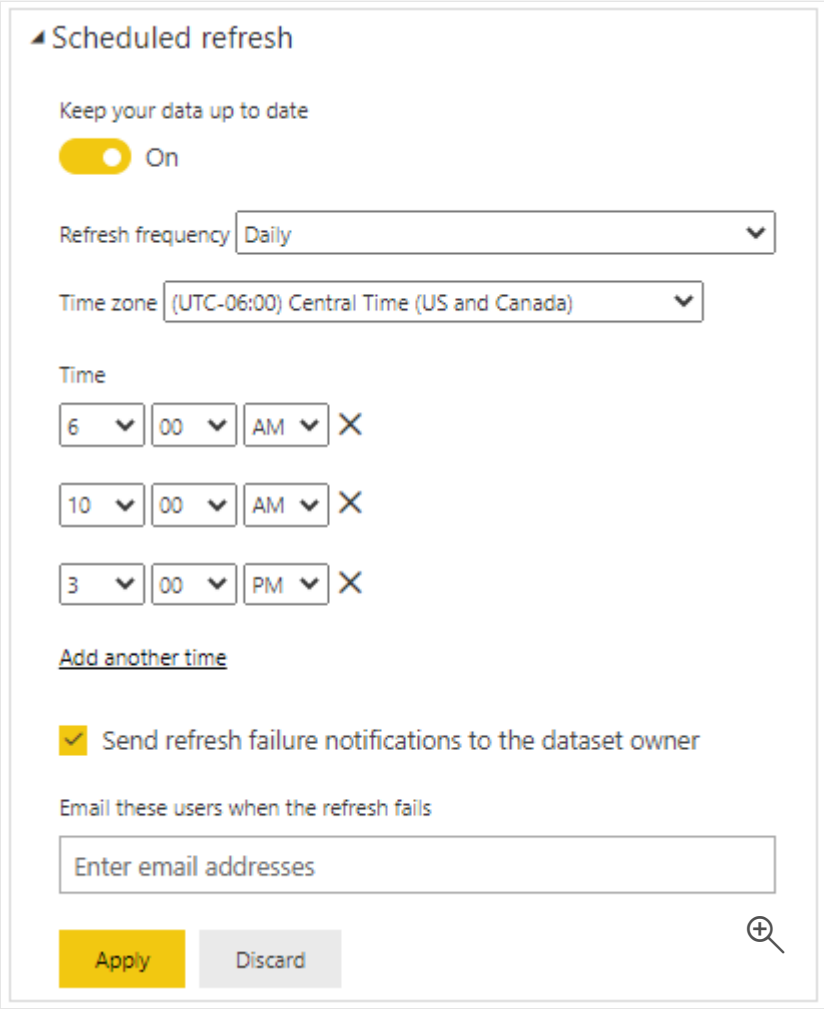
1. Go to the **Datasets + dataflows** page.
2. Hover over the dataset for which you want to set up the schedule and then select the **Schedule refresh** icon.



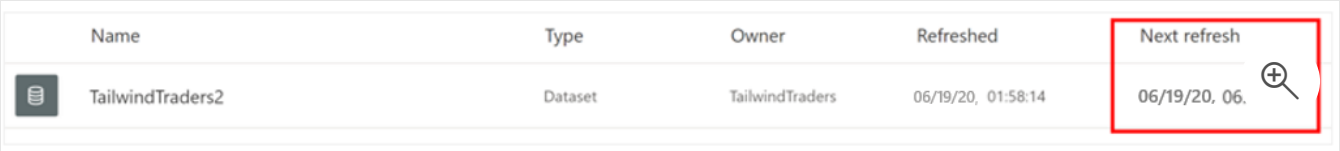
3. On the **Settings** page, turn on the **Scheduled refresh** feature.
4. Select the **Refresh frequency** and ensure that the correct time zone is selected.
5. Add the time(s) that you want the refresh to occur. You can configure up to eight daily time slots, if your dataset is on shared capacity, or 48 time slots on Power BI Premium.
6. When you have finished configuring the scheduled refresh, select **Apply**.

> **Note**
>
> While you can set a time for the refresh, be aware that the refresh might not take place at that exact time. Power BI starts scheduled refreshes on a best effort basis. The goal is to initiate the refresh within 15 minutes of the scheduled time slot, but a delay of up to one hour can occur if the service can't allocate the required resources sooner.

In this example, you want the system to refresh the sales data on a daily basis, at 6:00 AM, 10:00 AM, and 3:00 PM, as illustrated in the following image.



When you have configured a refresh schedule, the dataset settings page informs you of the next refresh time, as shown in the following image.

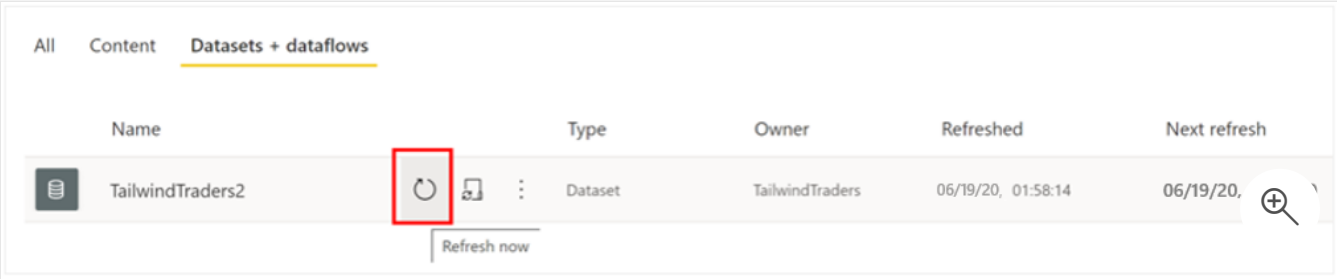


Perform an on-demand refresh

In addition to the scheduled refreshes, you can refresh a dataset at any time by performing an on-demand refresh. This type of refresh doesn't affect the next scheduled refresh time.

For example, you might want to refresh now because you need to view the most recent data and can't wait for the next refresh time, or you might want to test your gateway and data source configuration.

To perform an on-demand refresh, on the **Datasets + dataflows** page, hover over the dataset that you want to refresh and then select the **Refresh now** icon.

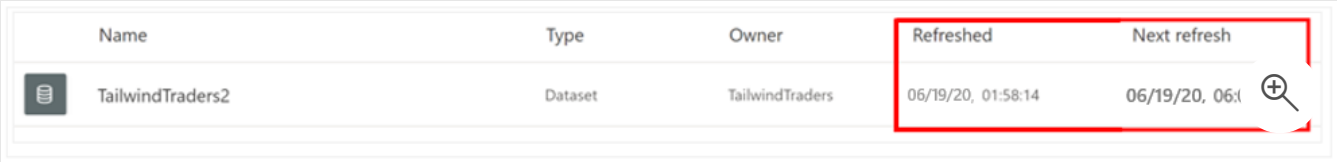


Check the refresh status and history

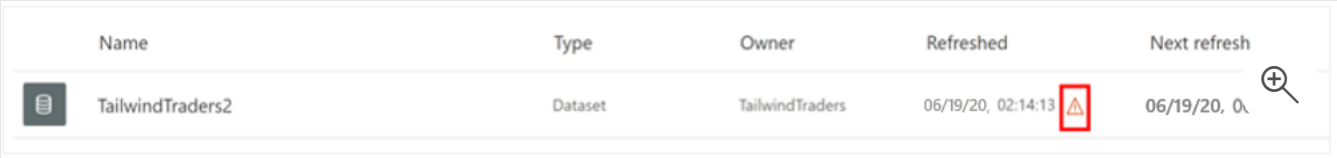
You can check the refresh status and history at any time. This feature is useful if you want to find out when the last refresh occurred and when the next one is scheduled. It is also good practice to check the status of your datasets occasionally to check if refresh errors have occurred.

> **Note**
>
> Power BI deactivates your refresh schedule after four consecutive failures or when the service detects an unrecoverable error that requires a configuration update, such as invalid or expired credentials. It is not possible to change the consecutive failures threshold.

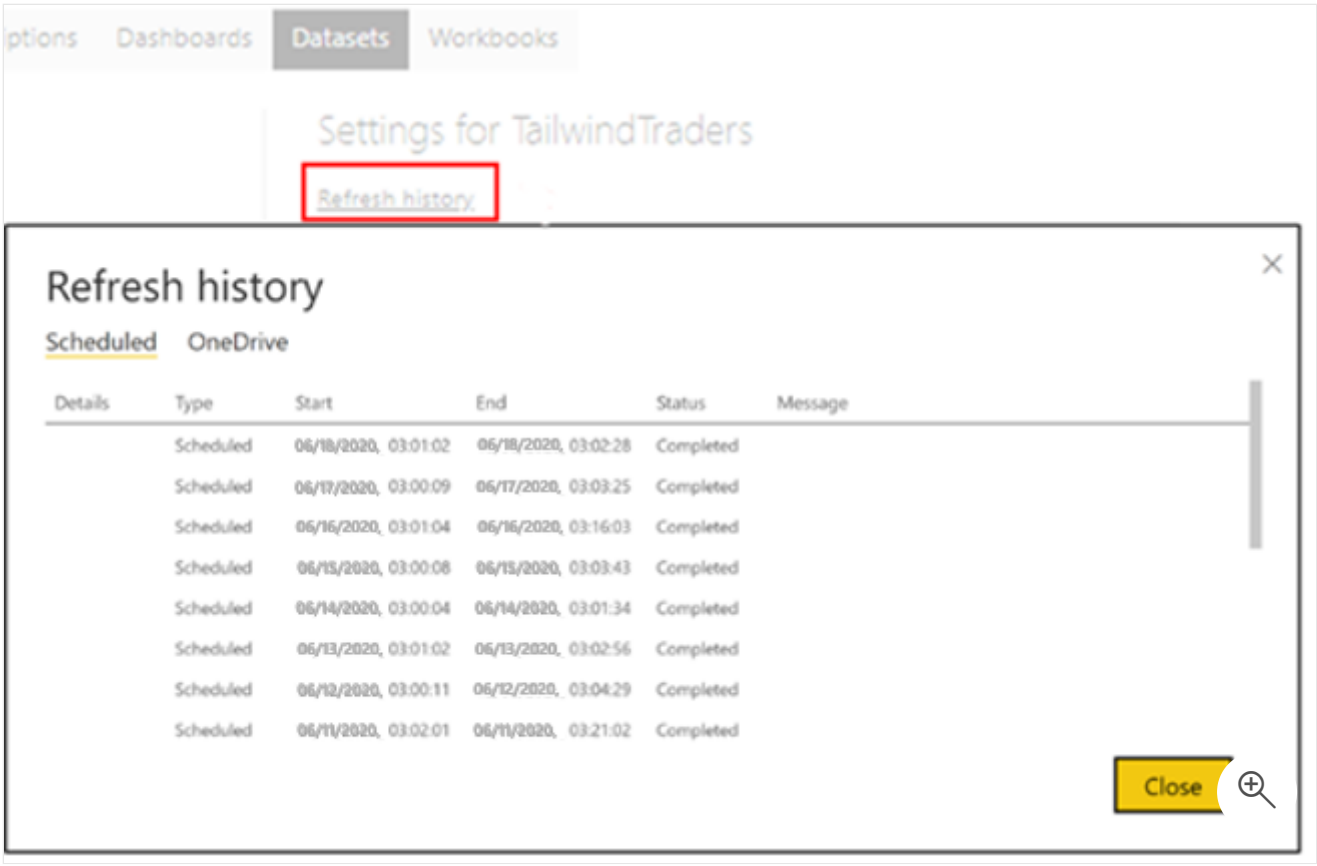
A quick way to check the refresh status is to view the list of datasets in a workspace.



If a dataset displays a small warning icon, you'll know that the dataset is currently experiencing an issue. Select the warning icon to get more information.



You should also check the refresh history occasionally to review the success or failure status of past synchronization cycles. To view the refresh history, open the dataset's settings page and then select **Refresh history**.



Next unit: Configure incremental refresh settings

Continue >

How are we doing? ☆ ☆ ☆ ☆ ☆

100 XP

Configure incremental refresh settings

5 minutes

The **Incremental refresh** feature in Power BI is a popular feature because it allows you to refresh large datasets quickly and as often as you need, without having to reload historical data each time.

> ⚠ **Warning**
>
> Incremental refresh should only be used on data sources and queries that support query folding. If query folding isn't supported, incremental refresh could lead to a bad user experience because, while it will still issue the queries for the relevant partitions, it will pull all data, potentially multiple times.

Traditionally, complex code was required for running incremental refreshes, but you can now define a refresh policy within Power BI Desktop. The refresh policy is applied when you publish to Power BI service, which then does the work of managing partitions for optimized data loads, resulting in the following benefits:

- **Quicker refreshes** - Only data that needs to be changed gets refreshed. For example, if you have five years' worth of data, and you only need to refresh the last 10 days because that is the only data that has changed, the incremental refresh will refresh only those 10 days of data. Undoubtedly, the time it takes to refresh 10 days of data is much shorter than five years of data.
- **More reliable refreshes** - You no longer need to keep your long-running data connections open to schedule a refresh.
- **Reduced resource consumption** - Because you only need to refresh the smaller the amount of data, the overall consumption of memory and other resources is reduced.

In this example, the Sales team has come to you with a dilemma. The data in their report is already out-of-date. It isn't feasible for you to manually refresh the data by adding a new file because the refreshes need to happen regularly to match the frequency of the sales transactions that are occurring. Also, the manual refresh task is becoming more difficult because the datasets have millions of rows. Consequently, you need to implement a better data refresh solution.

You can define an incremental refresh policy to solve this business problem. This process involves the following steps:

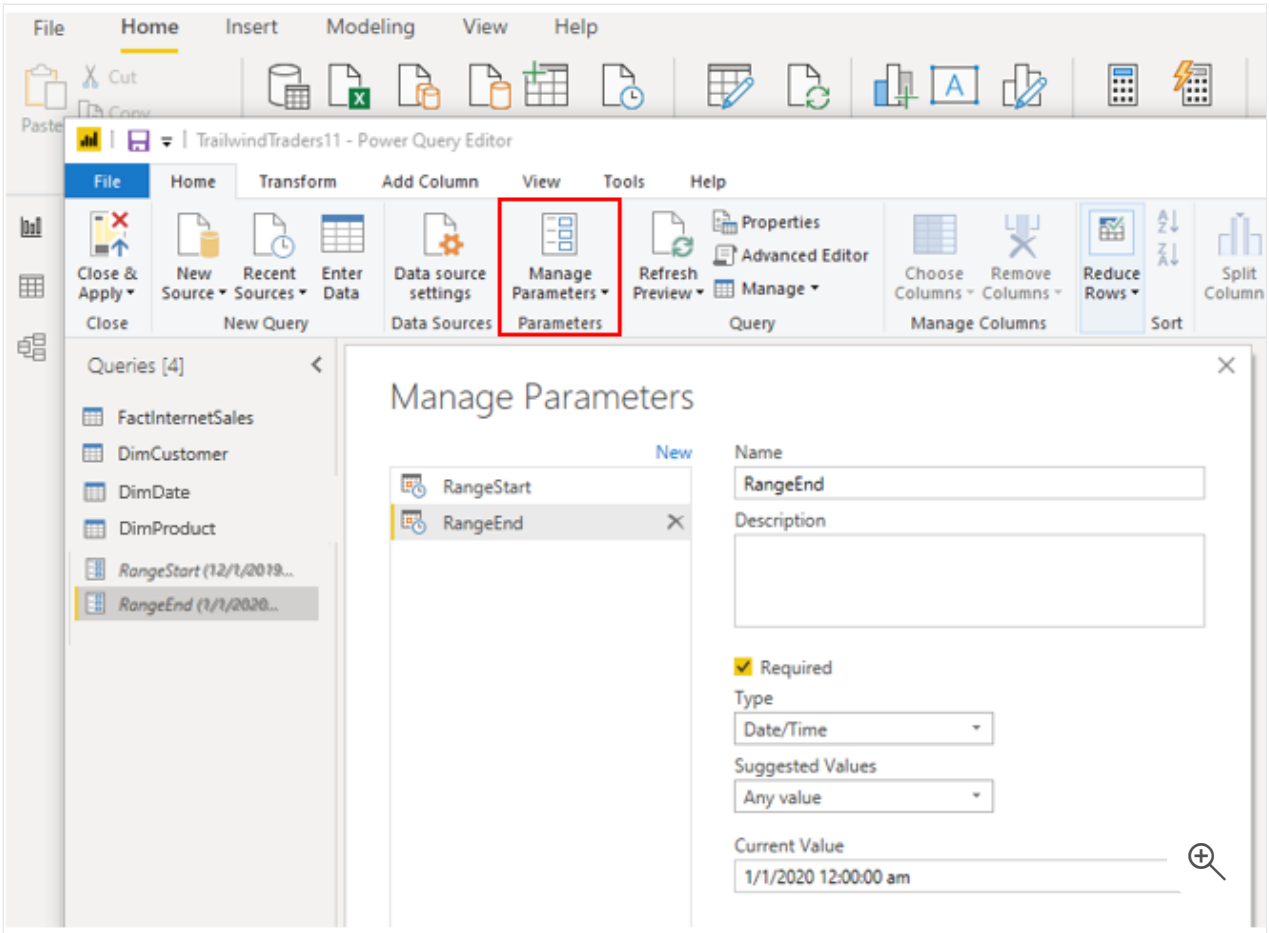
1. Define the filter parameters.
2. Use the parameters to apply a filter.
3. Define the incremental refresh policy.
4. Publish changes to Power BI service.

Define filter parameters

Whether you are using incremental refresh or not, large datasets are commonly filtered when they are imported into Power BI Desktop because the PBIX file is limited by the memory resources that are available on the desktop computer. For incremental refresh, the datasets are filtered by two date/time parameters: **RangeStart** and **RangeEnd**. These parameters have a dual purpose. In Power BI Desktop, they are the filtering window because they restrict the used data to the range that is listed in the start and end dates. After they have been published to the service, the parameters are taken over to be the sliding window to determine what data to pull in.

To define the parameters for the incremental refresh, follow these steps:

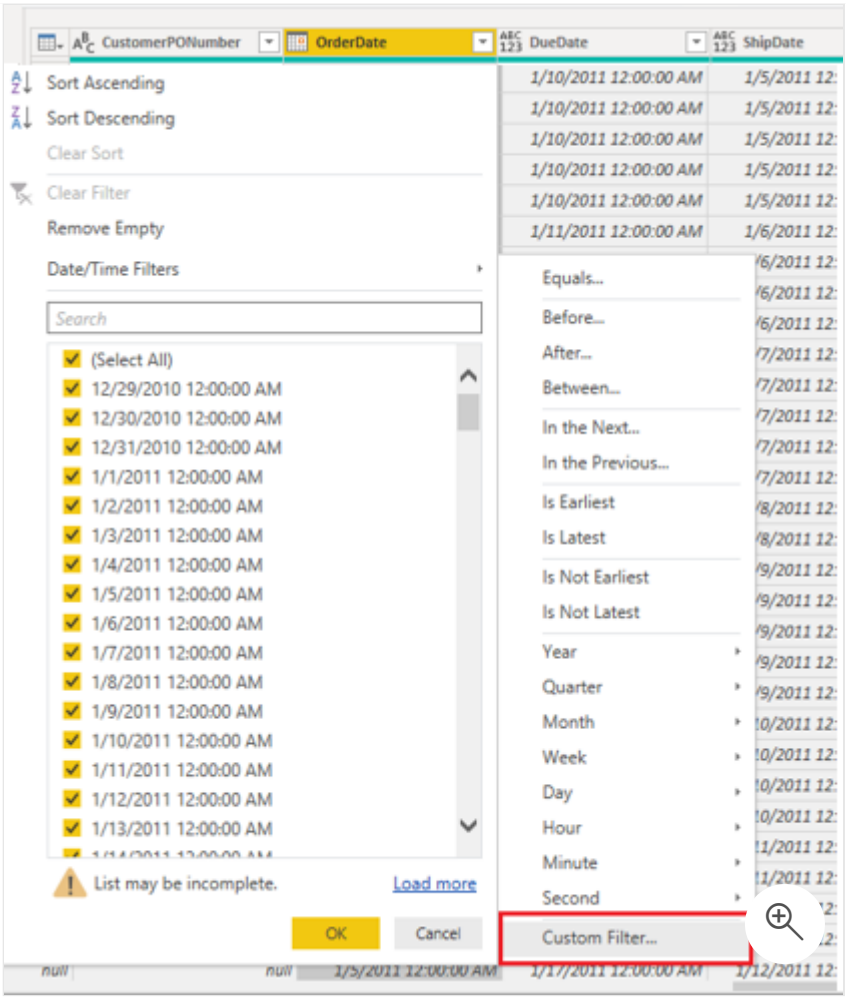
1. Open your dataset in Power Query Editor.
2. On the **Home** tab, select **Manage Parameters**.
3. On the **Parameters** window that displays, add two new parameters, **RangeStart** and **RangeEnd**, ensuring that for both parameters, the **Type** is set to **Date/Time** and the **Suggested Value** is set to **Any value**.
4. Regarding the **Current Value**, for the **RangeStart** parameter, enter the date on which you want to begin the import, and for the **RangeEnd** parameter, enter the date on which you want the import to end.



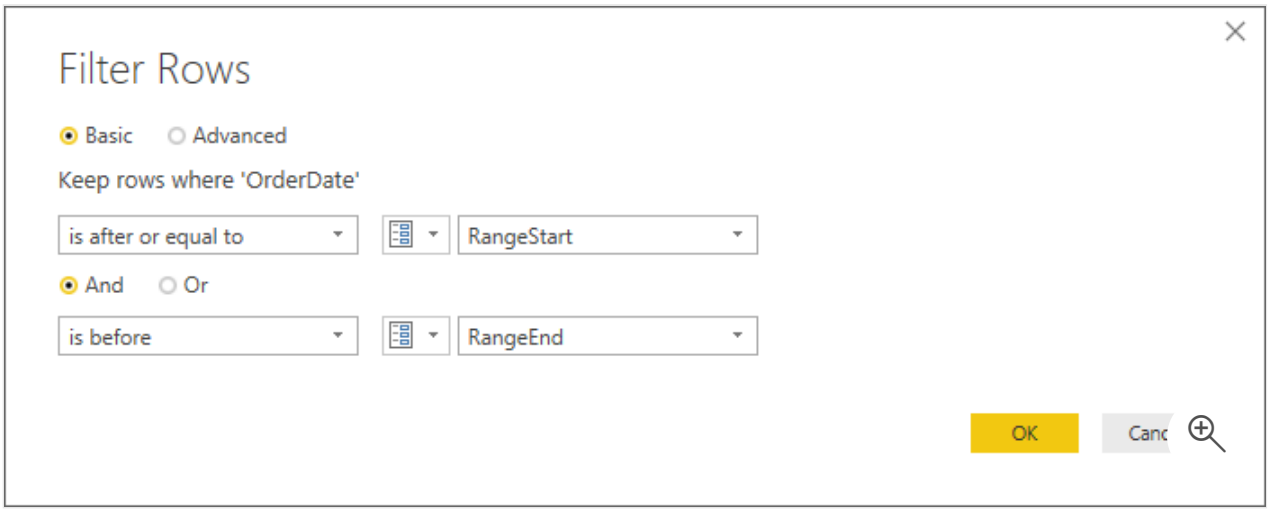
Apply the filter

When you have defined the new parameters, you can apply the filter by following these steps:

1. Go to the applicable **Date** column and then right-click that column and select **Custom Filter**.



2. In the **Filter Rows** window that displays, to avoid the double counting of rows, make sure that you keep rows where **OrderDate** is after or equal to the **RangeStart** parameter and before the **RangeEnd** parameter.



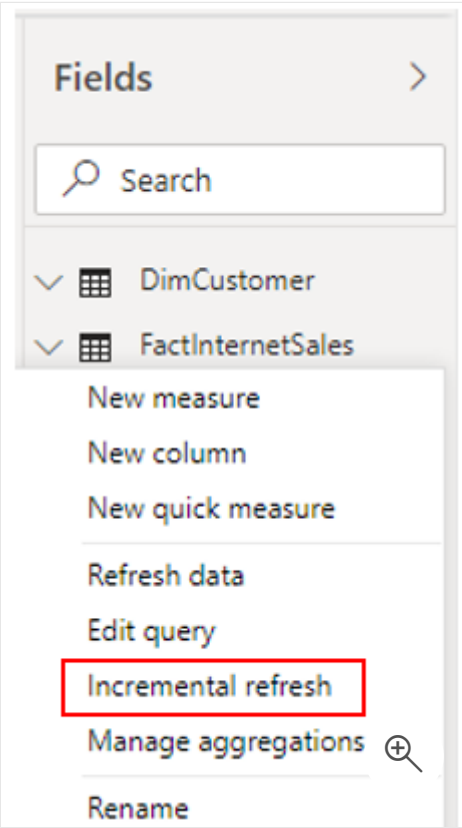
3. Select **Close and Apply** from the Power Query Editor.

You should now see a subset of the dataset in Power BI Desktop.

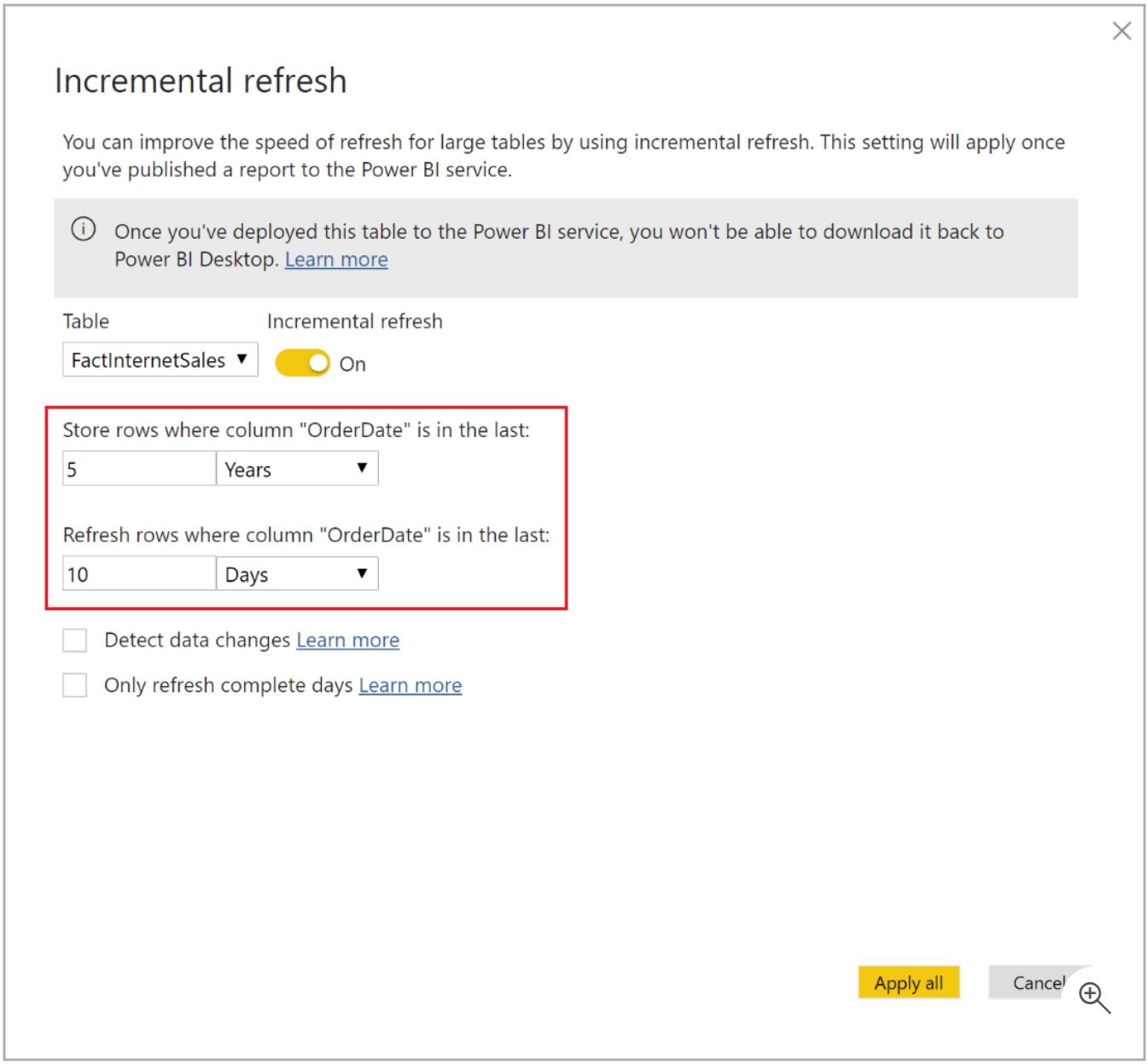
Define the incremental refresh policy

When you have filtered the data, you can define the incremental refresh policy for the data table, which sets up the refresh process.

Right-click the applicable table and then select **Incremental refresh**.



On the **Incremental refresh** window that displays, turn on the **Incremental refresh** option. Then, configure the refresh as required. In this example, you will define a refresh policy to store data for five full calendar years, plus data for the current year up to the current date, and incrementally refresh 10 days of data.



The first refresh operation in Power BI service will load the historical data for the last five years. The subsequent refresh operations are incremental, and they will refresh the data that was changed in the last 10 days up to the current date. The incremental refreshes will also remove calendar years that are older than five years prior to the current date.

Publish to Power BI service

When you have defined the incremental refresh policy in Power BI Desktop, to apply that refresh policy, you need to publish the report to Power BI service.

For more information, see Incremental refresh on Power BI.

Next unit: Manage and promote datasets

100 XP

Manage and promote datasets

3 minutes

Business intelligence involves collaboration, and sharing datasets across workspaces is a powerful way to collaborate within your organization. However, if your organization has many different datasets that can be accessed by many users, you might want to take measures to manage those datasets. For instance, you might want to direct your users to the most up-to-date and highest-quality datasets in your workspaces, or you might want to restrict the reuse of datasets across your workspaces.

To ensure that your organization has consistent data for making decisions and a healthy data culture, it's important to create and share optimized datasets and then endorse those datasets as the *one source of truth*. Report creators can then reuse those endorsed datasets to build accurate, standardized reports.

Power BI provides two ways to endorse your datasets:

- **Promotion** - Promote your datasets when they're ready for broad usage.
- **Certification** - Request certification for a promoted dataset. Certification can be a highly selective process, so only the truly reliable and authoritative datasets are used across the organization.

In this example, you and the other teams are using a workspace in Power BI service to organize all your reports and dashboards. However, you begin to receive emails from confused users who expected to see a sales report and are now looking at a product report instead. You need to make some changes to direct your users to the datasets that they should be accessing, and you can accomplish this task with the endorsing capability in Power BI.

In this example, the certification type of endorsement is best suited for the Sales team because it will require users to have special access before they can view the Sales dashboards. By implementing the certification, you'll lead your users to the most appropriate reports and dashboards, avoiding the inevitable confusion that might arise with building and sharing a diversity of reports.

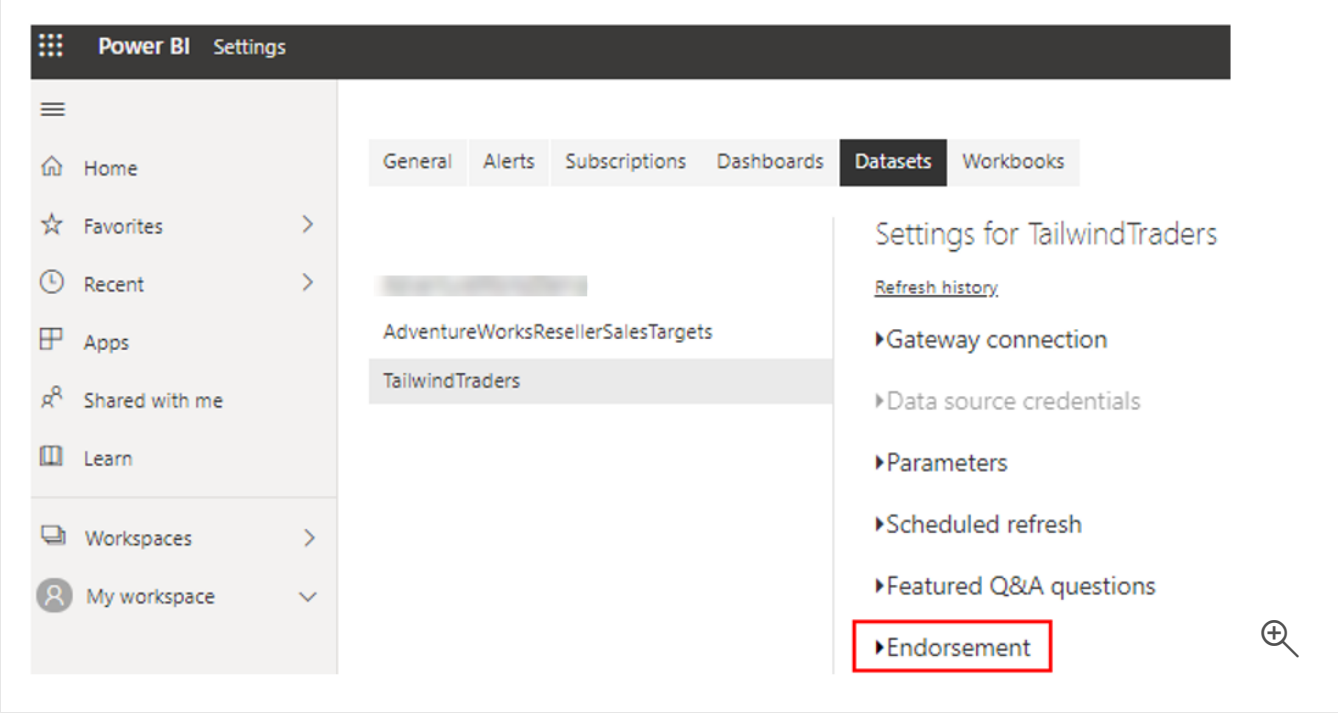
Though you'll soon learn how to certify the dataset, you'll first learn how to promote a dataset, in case you prefer to use that method.

Promote a dataset

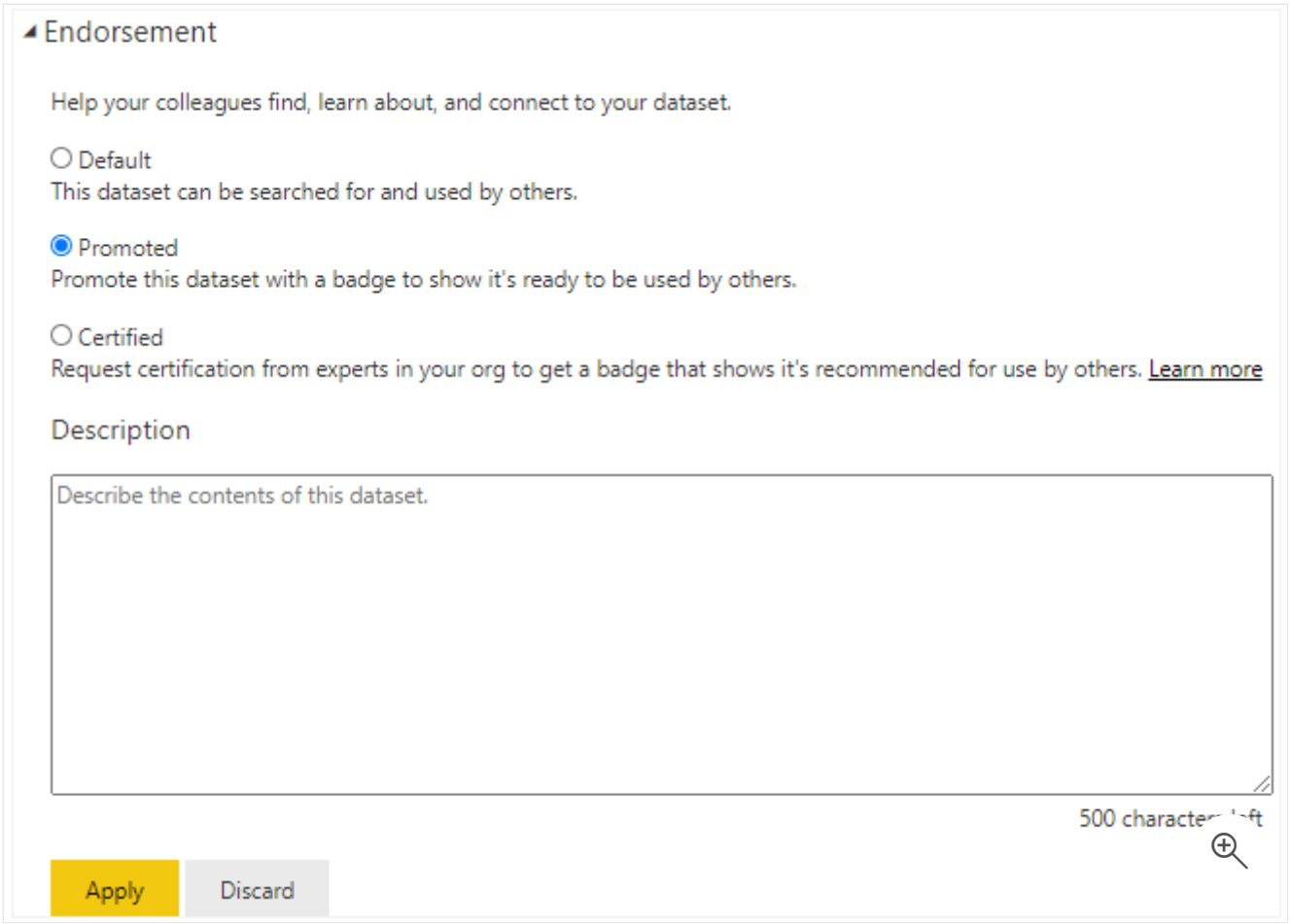
To promote content, you must have write permissions the workspace where the content you want to promote is located.

To promote a dataset, go to your workspace in Power BI service, and then open the settings page for the dataset that you want to promote. In this example, you want to promote the Tailwind Traders dataset.

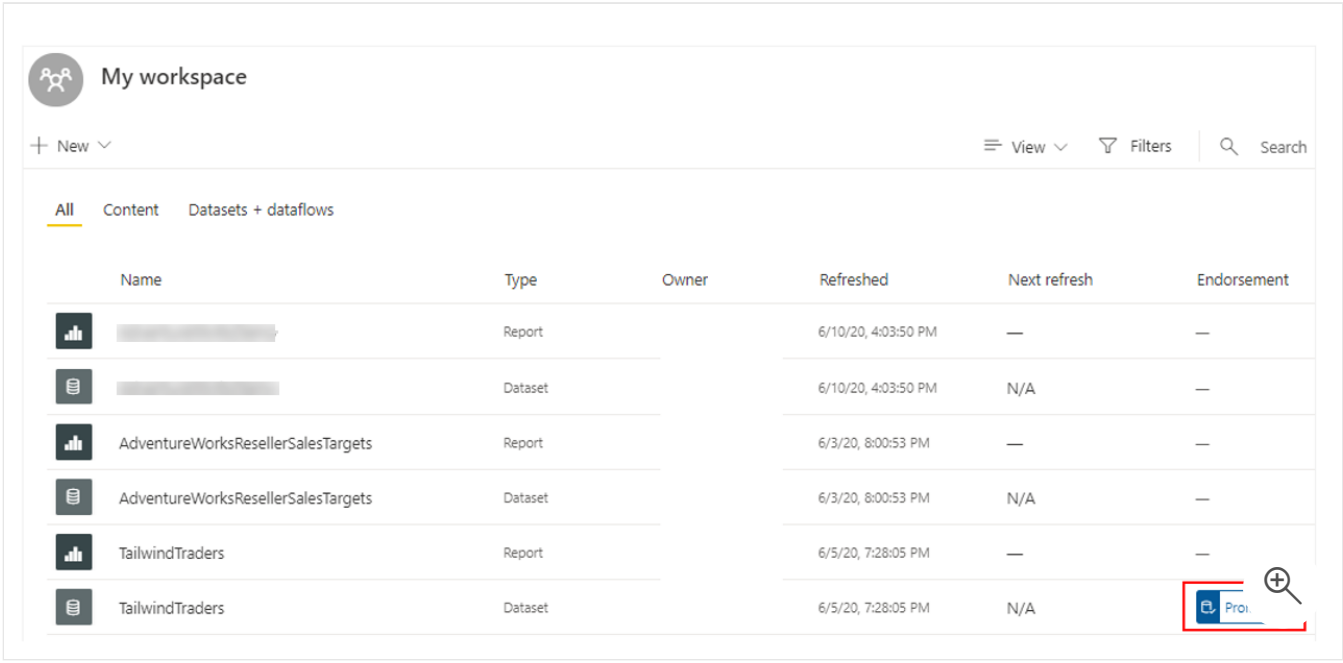
Select the **Endorsement** setting.



In the **Endorsement** settings, select the **Promoted** option, and then select **Apply**.



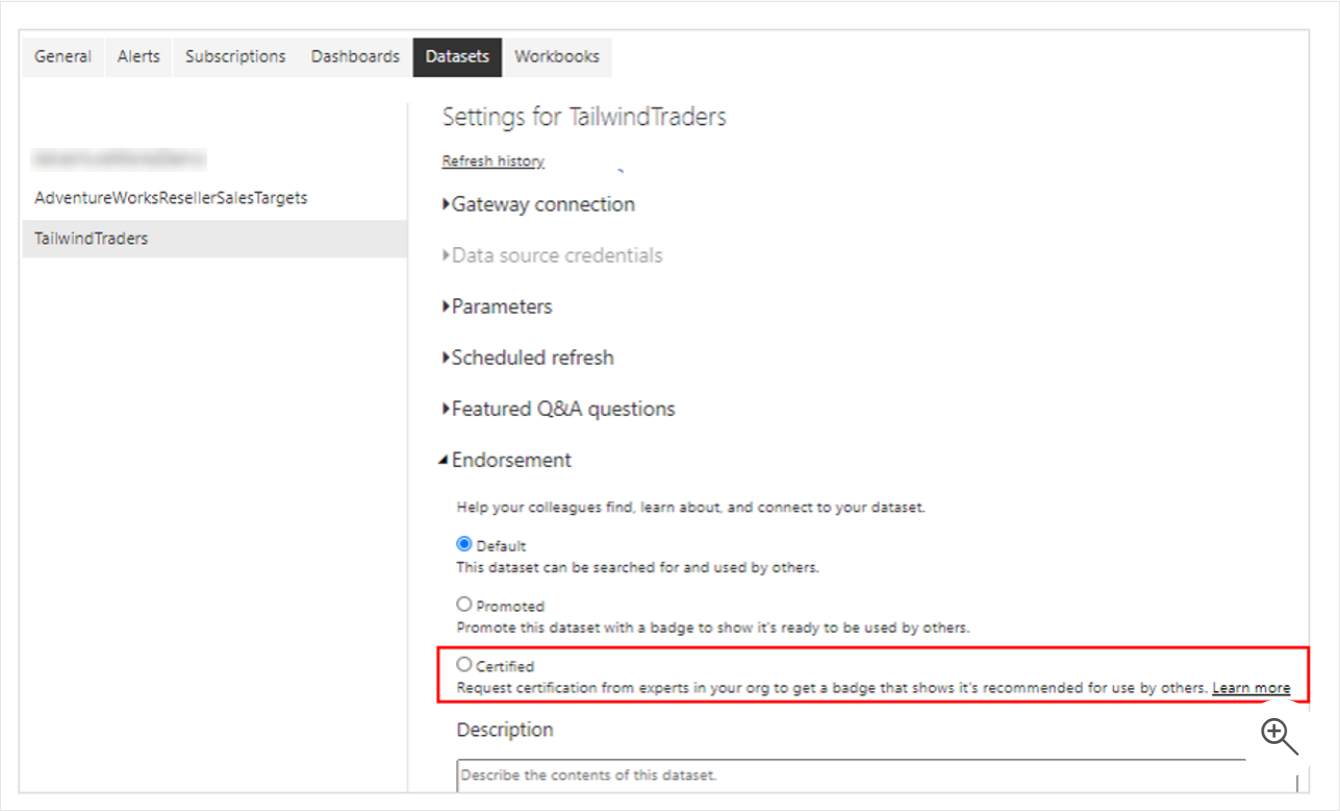
When you return to your workspace, a badge in the **Endorsement** column for that dataset will appear, indicating that it's ready for viewing by all of your users.



Certify a dataset

Content certification is a big responsibility, and only authorized users can certify content. Other users can request content certification.

To request certification for a dataset, you start the same way as you did to promote the dataset in **Endorsement** section. If it is greyed out, your admins will provide details in a link titled, "*How do I get my dataset certified?*" in the **Certified** section.



For more information, see Promote your dataset or Certify datasets.

Next unit: Troubleshoot service connectivity

Continue >

How are we doing? ☆ ☆ ☆ ☆ ☆

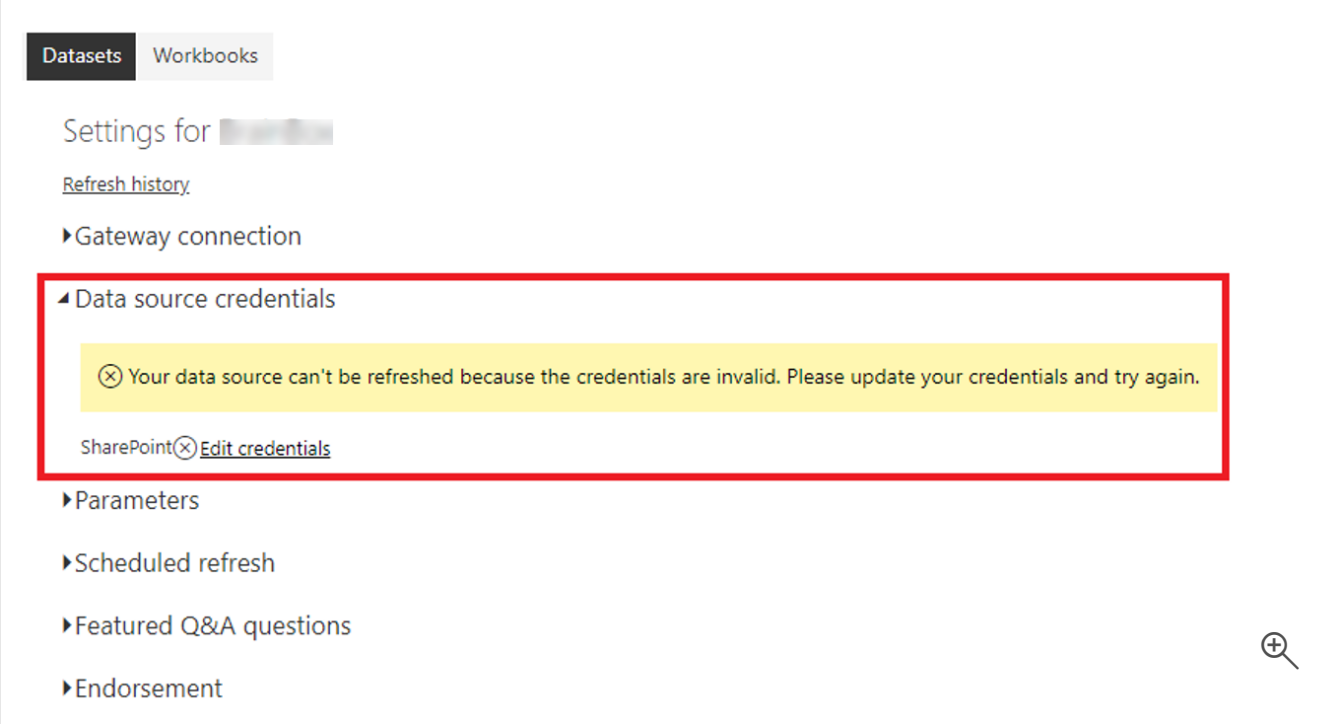
100 XP

Troubleshoot service connectivity

1 minute

Cloud services, such as SharePoint, do not require a gateway because the data is already in the cloud. You only need to provide your authorization credentials to set up a data source connection.

If your report fails to refresh, ensure that your data source credentials are up to date.



If your data source credentials are not up to date, you'll need to take further action to investigate and resolve the issue.

For more information, see Troubleshooting refresh scenarios.

Next unit: Boost performance with query caching (Premium)

Continue

100 XP

Boost performance with query caching (Premium)

2 minutes

With the **Query Caching** feature, you can use the local caching services of Power BI to process query results. Instead of relying on the dataset to calculate queries, which when overloaded can reduce performance, you can use cloud resources on your Premium capacities on Power BI service to load your report and, thereby, ensure constant performance.

To continue with the module scenario, as you begin collaborating with more teams to build reports and dashboards, you notice that some of your datasets are causing the reports to load more slowly than before, an issue that is starting to annoy your users. The Sales team wants to know how they can improve performance and make these reports load faster. You decide to use the **Query Caching** ability in Power BI to help solve this problem.

Query caching

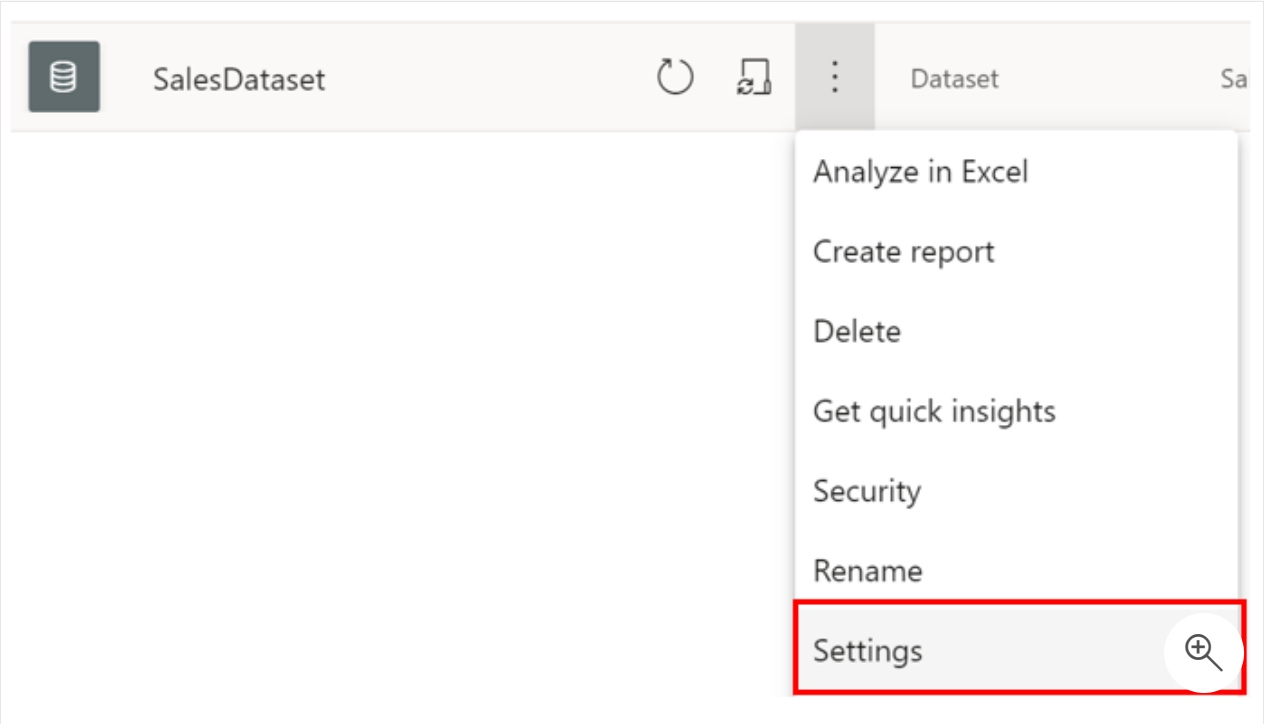
Query Caching is a local caching feature that maintains results on a user and report basis. This service is only available to users with Power BI Premium or Power BI Embedded.

When using query caching, the query results are only specific to a user, and you can only use query caching on a specific page of a report. Several benefits to using query caching include:

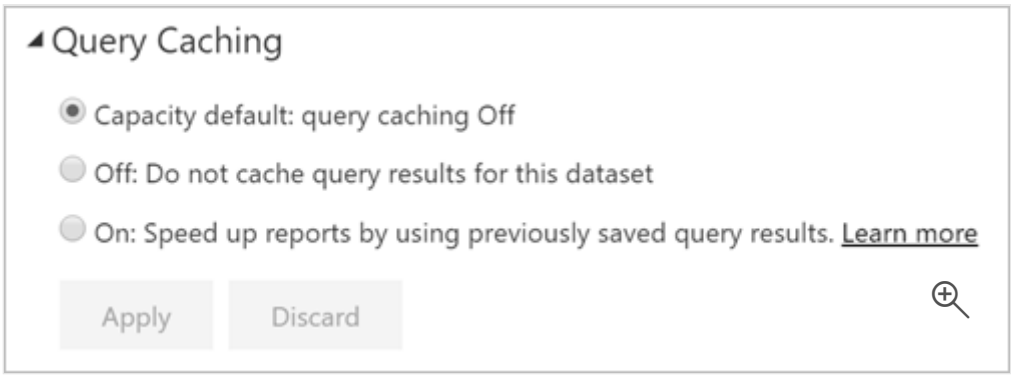
- Improvement of the performance of reports, dashboards, and dashboard tiles by reducing loading time and increasing query speed; this notion is especially true for datasets that are not refreshed often and are accessed frequently.
- It respects bookmarks and default filters, so even if you enable query caching, any bookmarks that you have created still exist.
- Cached query results are specific to the user.
- All security labels are followed.
- It reduces the load on your dedicated capacity.

To access and configure query caching, follow these steps:

1. Go to a dataset in your workspace and open its **Settings** page. In this example, you will enable query caching for **SalesDataset**.



2. Select the **Datasets** tab and expand the **Query Caching** options, as shown in the following image.



3. On the **Query Caching** page, choose one of the available options. The default option is that query caching is turned off; however, you can also select **Off**, which turns off query caching for the specific dataset in question. If you select **On**, query caching will be turned on for this specific dataset only. For this example, you will select **On** for your dataset because you want to apply query caching to your specific dataset.

> **Note**
>
> Switching from **On** to **Off** will clear all previously saved query results. When turning off query caching (either through the default or the **Off** option), a small delay will occur in query loading because the report queries are running against the dataset and it does not have saved queries to fall back on.

> **⚠ Warning**
>
> If many datasets have query caching enabled, and a refresh occurs, a reduction in performance might occur because a large number of queries are being processed at once.

For more information, see Query Caching in Power BI.

Next unit: Check your knowledge

Continue >

How are we doing? ☆ ☆ ☆ ☆ ☆

200 XP

Check your knowledge

3 minutes

Answer the following questions to see what you've learned.

1. Where are dataset-scheduled refreshes configured? *

- ◯ Power BI service
  - ✔ **Dataset-scheduled refreshes are configured in Power BI service.**
- ◯ Power BI Desktop
- ◯ AppSource

2. What reserved parameters configure the start and end of where Incremental refresh should occur? *

- ◯ Start and End parameters
  - ✘ **RangeStart and RangeEnd configure the start and end of where Incremental refresh should occur.**
- ◯ StartRange and EndRange
- ◯ RangeStart and RangeEnd
  - ✔ **RangeStart and RangeEnd configure the start and end of where Incremental refresh should occur.**

3. What is the difference between Promotion and Certification when you are endorsing a dataset? *

- ◯ Promotion requires write access while Certification requires permission from the dataset owner to access to the dataset.
- ◯ Promotion is for broad usage while Certification needs permission granted on the Admin Tenant settings.

✔ **Promotion does not need specific permissions while Certification requires permission from the dataset owner to access to the dataset.**

○ Promotion is for specific users while Certification needs permission granted on the Admin Tenant settings.

Next unit: Summary

Continue >

How are we doing? ☆ ☆ ☆ ☆ ☆

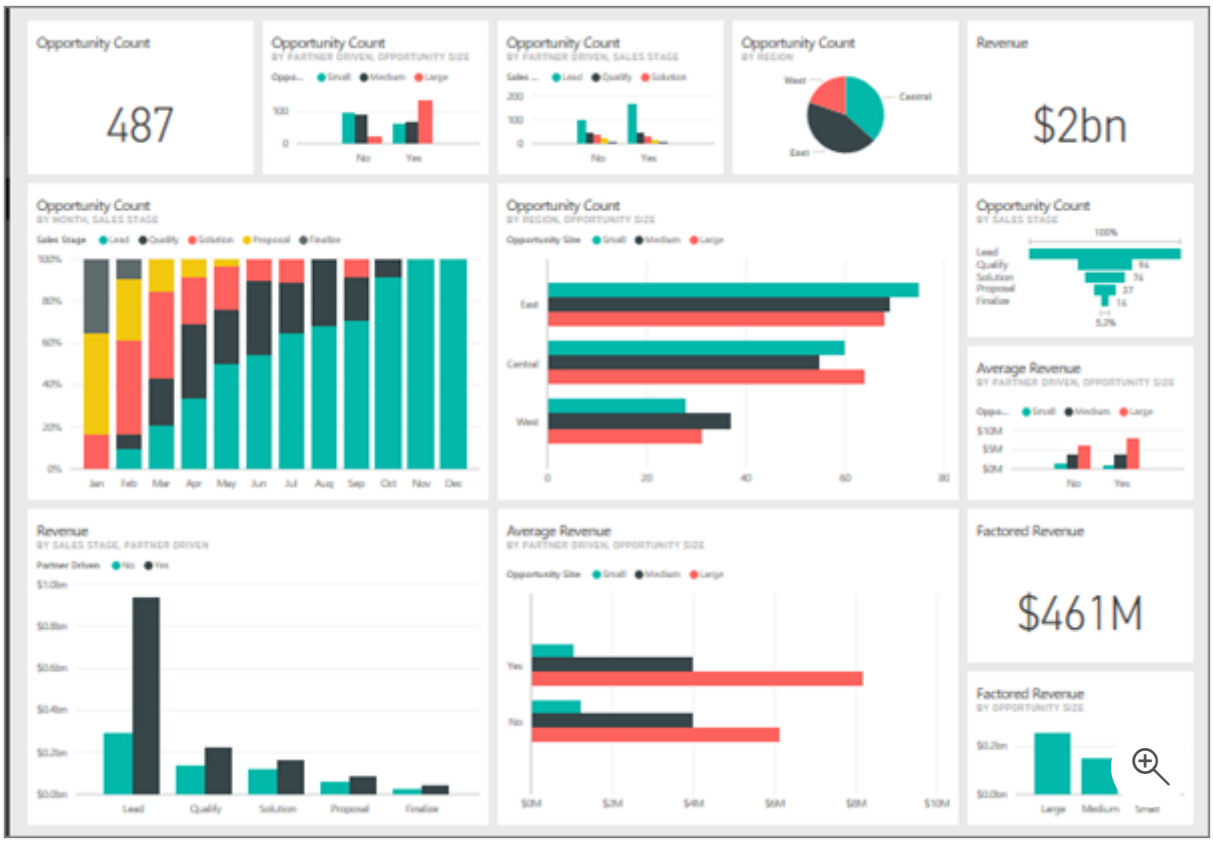
100 XP

Introduction to dashboards

5 minutes

Microsoft Power BI dashboards are different than Power BI reports. Dashboards allow report consumers to create a single artifact of directed data that is personalized just for them. Dashboards can be comprised of pinned visuals that are taken from different reports. Where a Power BI report uses data from a single dataset, a Power BI dashboard can contain visuals from different datasets.

Well-built dashboards capture the main, most important highlights of the story that you are trying to tell. The following screenshot is an example of a well-built dashboard.



Power BI dashboards is a feature that is only included in Power BI service. You can also view dashboards on mobile devices, though you can't build them there.

Consider dashboards as the display window at a bakery, where you want people to be able to view the most important items, while inside the shop (and in your reports in Power BI Desktop) is where all ingredients are transformed to produce the display.

Dashboards vs. reports

When would you want to build a dashboard versus a report? The following list explains the key similarities and differences worth noting when you are determining the right path for you:

- Dashboards can be created from multiple datasets or reports.
- Dashboards do not have the **Filter**, **Visualization**, and **Fields** panes that are in Power BI Desktop, meaning that you can't add new filters and slicers, and you can't make edits.
- Dashboards can only be a single page, whereas reports can be multiple pages.
- You can't see the underlying dataset directly in a dashboard, while you can see the dataset in a report under the **Data** tab in Power BI Desktop.
- Both dashboards and reports can be refreshed to show the latest data.

Dashboards allow a user to pin visuals from different reports and datasets onto a single canvas, making it simple to group what's important to the user. Reports, on the other hand, are more focused on being able to visualize and apply transformations to a single dataset. Consider dashboards as the next step that you want to take after building your reports in Power BI Desktop.

Now that you've learned about the background of dashboards and reports, you can learn about dashboards in depth, specifically about their individual components.

Manage tiles on a dashboard

Tiles are the individual report elements, or snapshots, of your data that are then pinned to a dashboard. Tiles can be sourced from a multitude of places including reports, datasets, other dashboards, Microsoft Excel, SQL Server Reporting Services, and more. When pinning a report element to a dashboard, you create a direct connection between the dashboard and the report that the snapshot came from.

Your first task in this module is to create a basic dashboard. For this scenario, you have created a simple report in Power BI Desktop called **Tailwind Sales**.

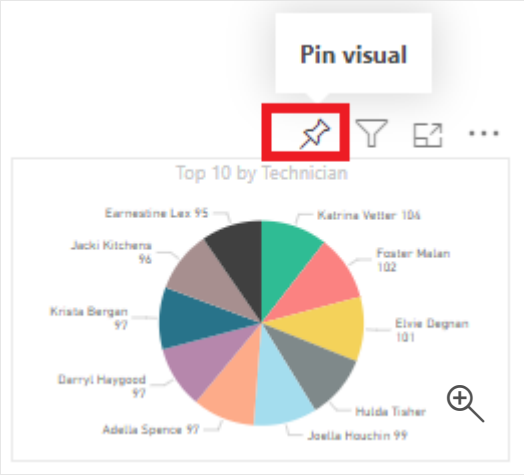
Pin a tile to a dashboard

You've uploaded your reports into Power BI service and are now viewing the report in Power BI service. How do you create a dashboard? You can pin an entire report page, or you can pin individual tiles, both of which will be discussed later.

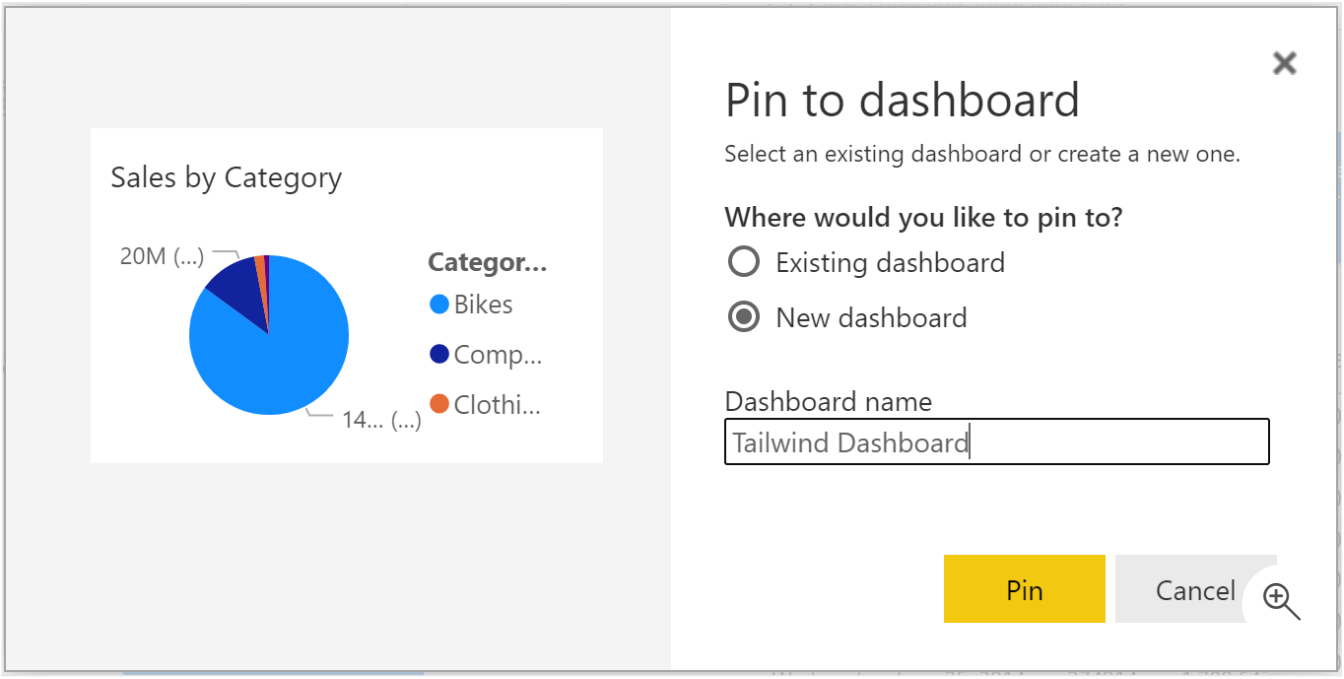
The pinning process pulls visuals from your report and "pins" them to a dashboard for easy viewing. When you make changes to the visuals in the report, and then re-publish to Power BI

Service, changes will be reflected on the dashboard.

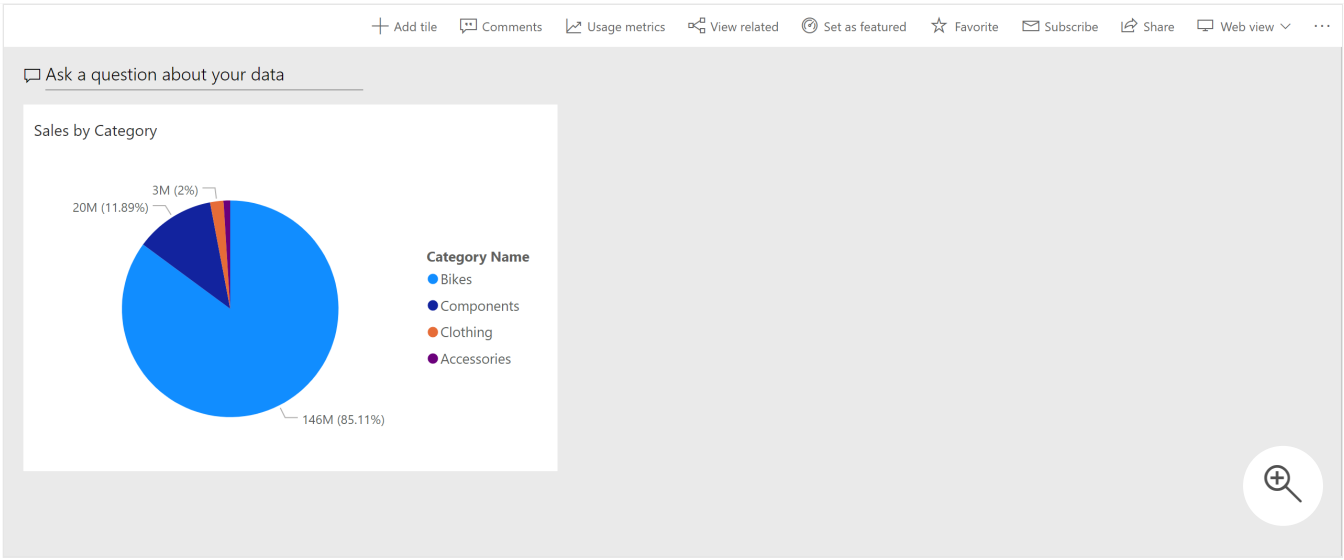
To look at a specific visual, consider that you want to pin your tile, **Sales by Category**, onto a new dashboard for easy viewing. You can complete this task by hovering over the visual. In the visual header, select the **Pin Visual** icon, as shown in the following image.



After you have selected the icon, a window will appear, where you can choose to pin this visual to a new or existing dashboard. For this example, you want your tile to be on a new dashboard called **Tailwind Dashboard**.



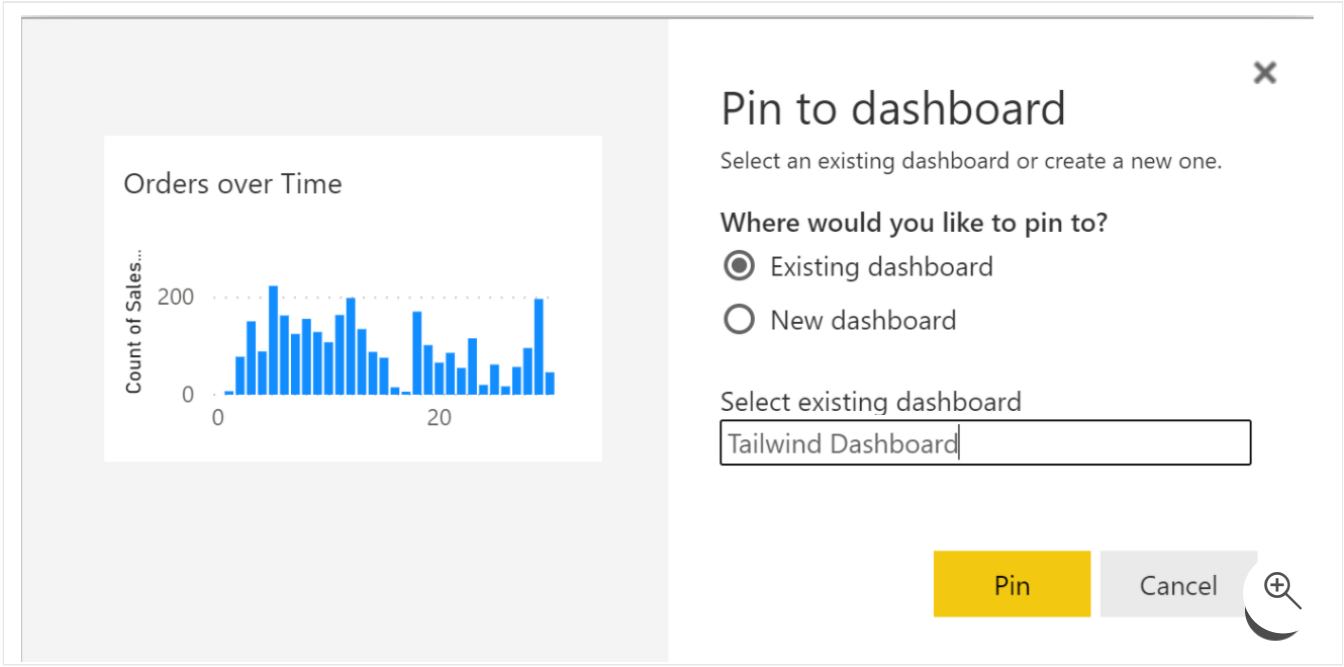
After you have selected **Pin**, you will be redirected to your new dashboard, where you have just pinned a tile from your report. You can resize and move this visual around the dashboard by selecting the visual, dragging, and then dropping it.



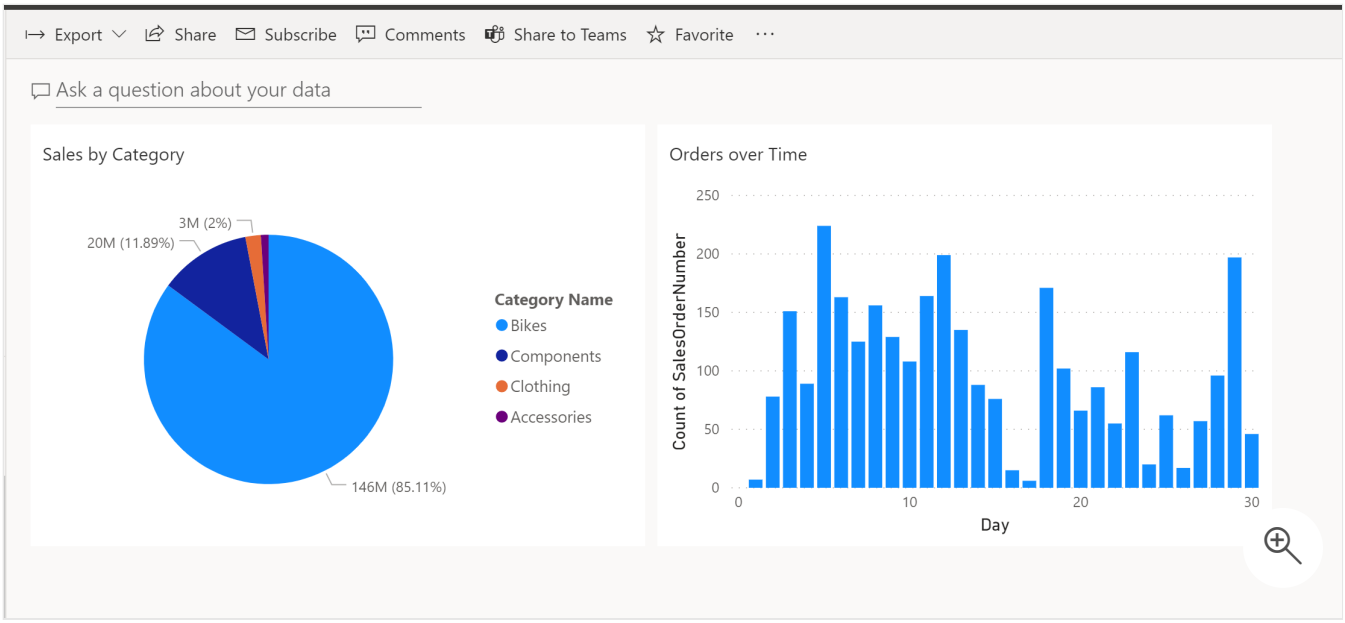
One of biggest benefits of a dashboard is being able to pin a visual that is sourced from a different dataset. The following section explains how you can add a visual onto your **Tailwind Dashboard** from a different report.

Pin a tile from a different report

What if you want to pin a visual from a different report (and different dataset) to an existing dashboard? To continue with the scenario, you want to add an **Orders over Time** visual, which is housed in a different report to **Tailwind Dashboard**. You can perform the same procedure in which you hover over the visual in the original report and then select the **Pin** icon. The following window will appear, but this time, you want to pin this visual onto an existing dashboard called **Tailwind Dashboard**.



When you navigate to your dashboard, notice that both visuals are now pinned, regardless of the underlying dataset.



Now that you have learned how to pin individual tiles, you can learn how to pin an entire report page, which will be discussed later in this module.

For more information, see Introduction to dashboard tiles.

Next unit: Configure data alerts

Continue >

How are we doing? ☆ ☆ ☆ ☆ ☆

100 XP

Configure data alerts

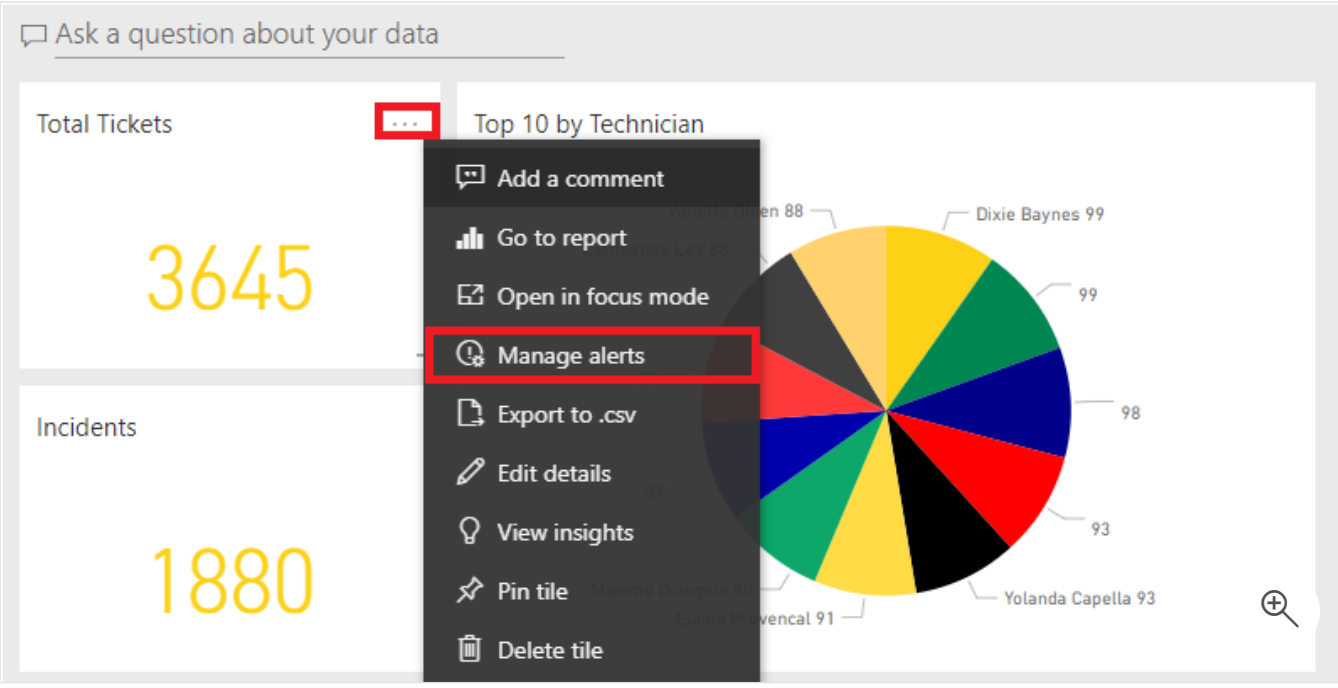
2 minutes

Configuring data alerts is a simple process to complete for a dashboard in Power BI. Data alerts can be used to notify you or a user that a specific data point is above, below, or at a specific threshold that you can set. These alerts are features that are only available on Power BI service and they are available on such report elements such as KPI visuals, gauges, and cards.

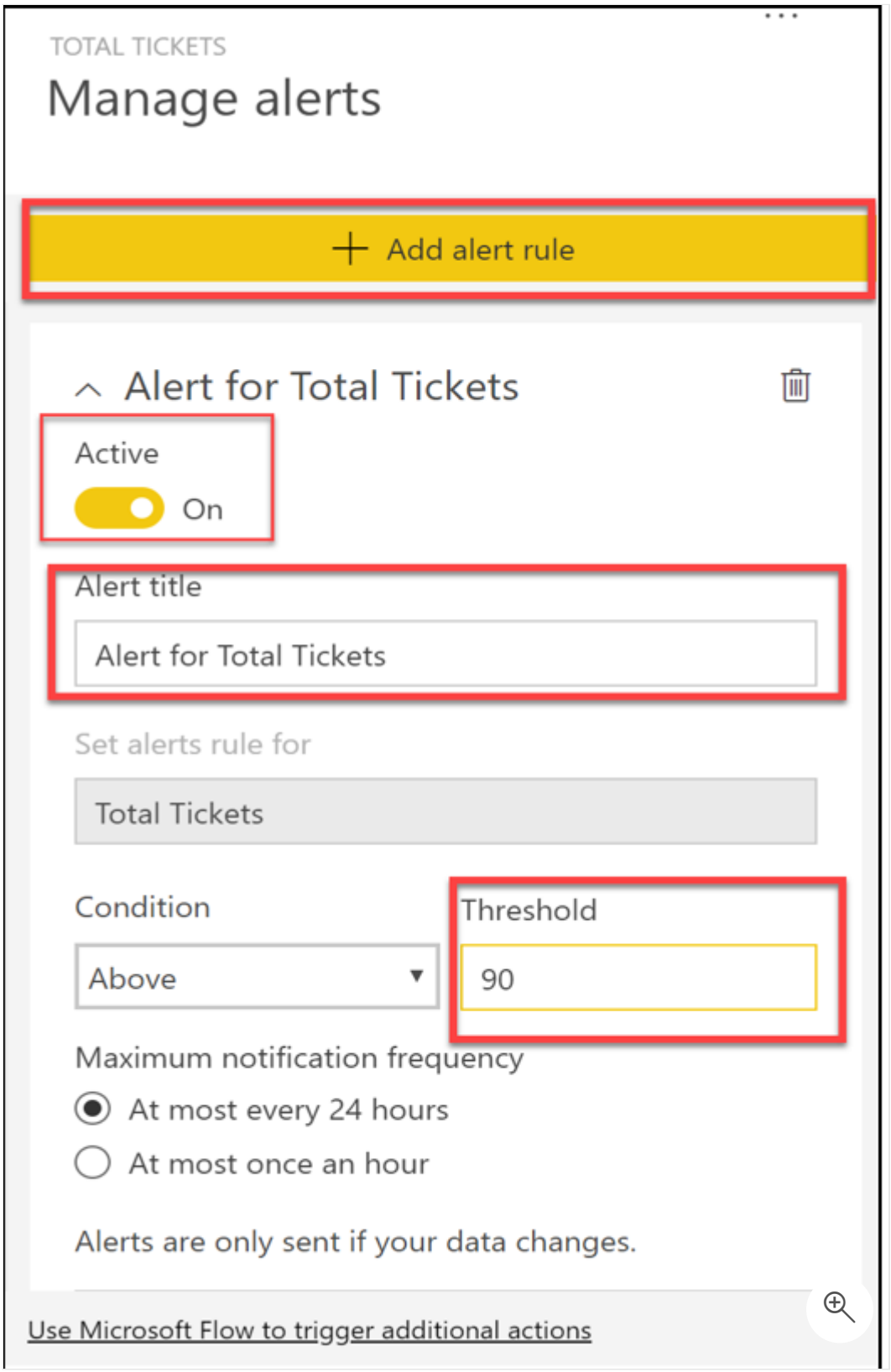
To continue with the previous scenario, you've begun putting together dashboards for the Sales team at Tailwind Traders. The sales data includes customer help ticket data that is focused around payment processes on the website. The company has a requirement that they want to be notified when the **Total Tickets** metric on the **Tickets** dashboard goes above a threshold so they can escalate to the appropriate customer service team. They also want to make sure that this alert is user-friendly so that anyone on the team can set up, view, and configure such alerts.

Configure alerts

After you have uploaded your reports to Power BI service and have pinned your chosen visuals to a dashboard, select the ellipsis (...) in the corner of the tile you want to set an alert for and then select **Manage Alerts**.



In the resulting window, select + **Add Alert Rule**, which will add a new alert. Ensure that the **Active** toggle switch is turned **On**, name the alert (in this case, use the name **Alert for Total Tickets**), and then set the condition. At this point, you can choose the threshold that you want to create the alert for, which includes options for **Above** or **Below** a specific threshold. In this scenario, you want to create a threshold that notifies if the total number of tickets goes above 90. Then, select at which frequency that you want the alerts to be sent. These alerts will be sent directly to your Notification Center in Power BI, but you can also configure emails to be sent to you if the threshold is crossed.



After selecting **Save and Close**, you will have successfully created a data alert in Power BI service.

This feature is available to whomever has access to the dashboard, not just the dashboard owner. Consequently, when the Sales team begins configuring the data alerts, they can personalize them so that whoever uses the report can have their own set of alerts. Additionally, you can enable or disable the alert by using the toggle switch.

For more information, see Data Alerts in Power BI service.

Next unit: Explore data by asking questions

Continue >

How are we doing? ☆ ☆ ☆ ☆ ☆

100 XP

Explore data by asking questions

2 minutes

Power BI dashboards are about having a user-friendly experience. Dashboards in Power BI service are comprised of a canvas of interactive tiles, or report elements, that tell a data story.

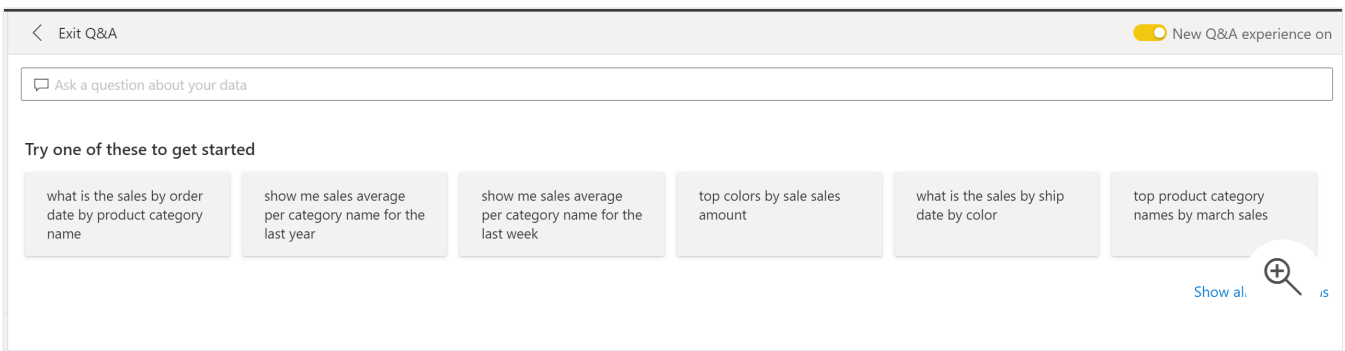
In this module's scenario, you are developing dashboards at Tailwind Traders. These dashboards are published; however, you begin receiving emails from users who are asking questions about the underlying data and are inquiring if you could build other visuals that are specific to their needs. A few questions might be manageable to answer, but situations might occur where you receive several emails and aren't able to keep up with demand. Power BI solves this problem with the Q&A visual. From the dashboard view, people can ask questions by using the **Ask a question about your data** search bar at the top of the dashboard, which increases engagement between users and the dashboard.

Q&A feature

The Q&A feature is a tool within Power BI Desktop that allows you to ask natural-language questions about the data.

To locate the Q&A feature, go to your dashboard in Power BI service. Along the top ribbon is the **Ask a question about your data** search box.

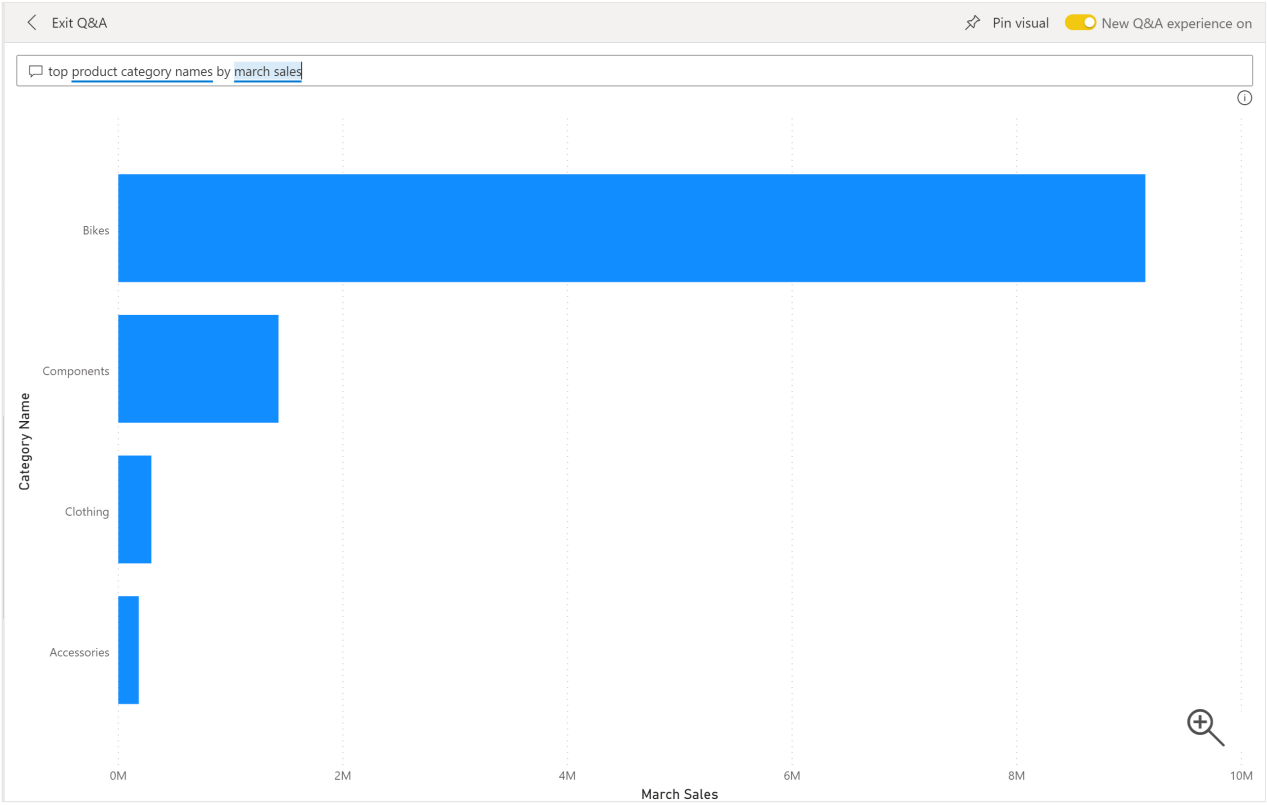
After selecting this box, you will be routed to the following page.



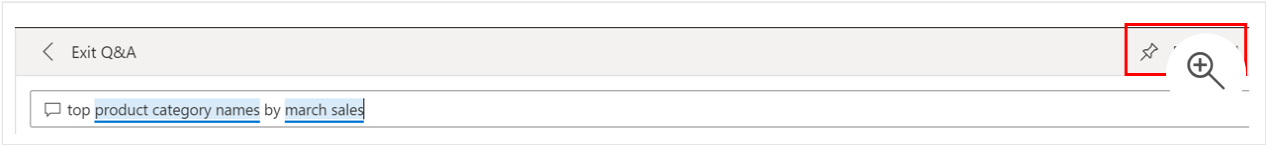
The Q&A visual consists of three main elements:

- **Question box** - In this element, the user can enter their question about the data. An example of a question could be: What was the average sales amount by category? Entering this question will trigger Power BI's natural-language analysis engine to parse and determine the appropriate data to display.

- **Pre-populated suggestion tiles** - This element contains tiles with pre-populated suggestions for questions that the user can consider asking. When the user selects one of these tiles, they will be shown analysis. For example, if you select the **top product category names by march sales** tile, you would get the following visual that is converted from the Q&A visual.



- **Pin visual** icon - This icon is located in the upper right of the visual, as shown in the following image.



Selecting the **pin visual** icon will allow you to pin the visual onto a new or existing dashboard, as you have done previously.

With the Q&A feature, you can return to your users with a solution to their questions. Now, they can interact directly with the visual to ask their data questions, which will increase their interactions with the visual and help them save time.

100 XP

Review Quick insights

10 minutes

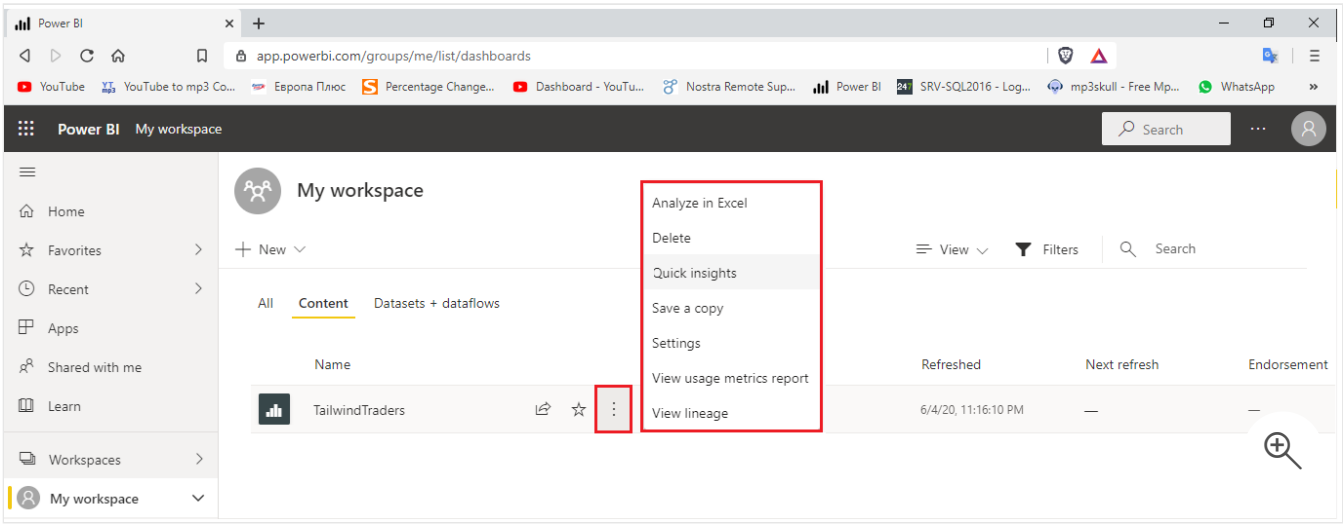
The **Quick insights** feature in Power BI uses machine learning algorithms to go over your entire dataset and produce insights (results) for you quickly. This feature is a great way to build dashboards when you don't know where to start. It also helps you find insights you might have missed when building your reports. From the insights that Power BI discovers, you can generate appealing, interactive visualizations.

> **Note**
>
> This feature is available in the Power BI web service only. Also, this feature doesn't work with DirectQuery; it only works with data that is imported to Power BI.

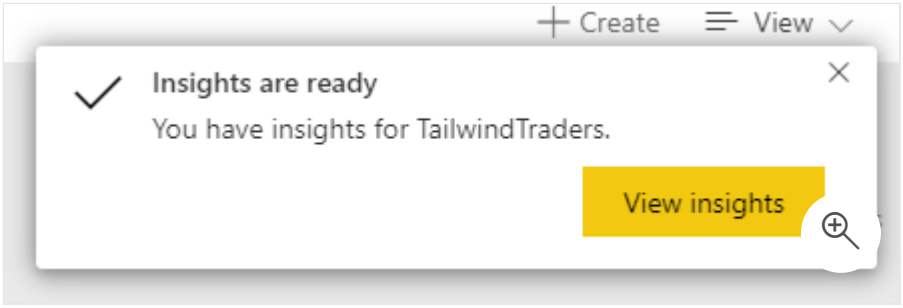
Consider the scenario where one of the datasets that you've been given contains substantial data concerning the Help tickets that were created for the Customer Service team. Because of the extensive data, you don't know where to begin analyzing, so you decide to let Power BI do it for you.

Get quick insights on your dataset

To get quick insights on your dataset, open your Power BI web service and then select the **Content** tab. Locate your report for which you want to get quick insights, which in this case is **TailwindTraders**. Then, select **More options (...)** > **Quick insights**.



Power BI will use various algorithms to search for trends in your dataset. This process might take a few seconds, but when it is finished, you'll see a message in the upper-right corner letting you know that the results are ready to be viewed.



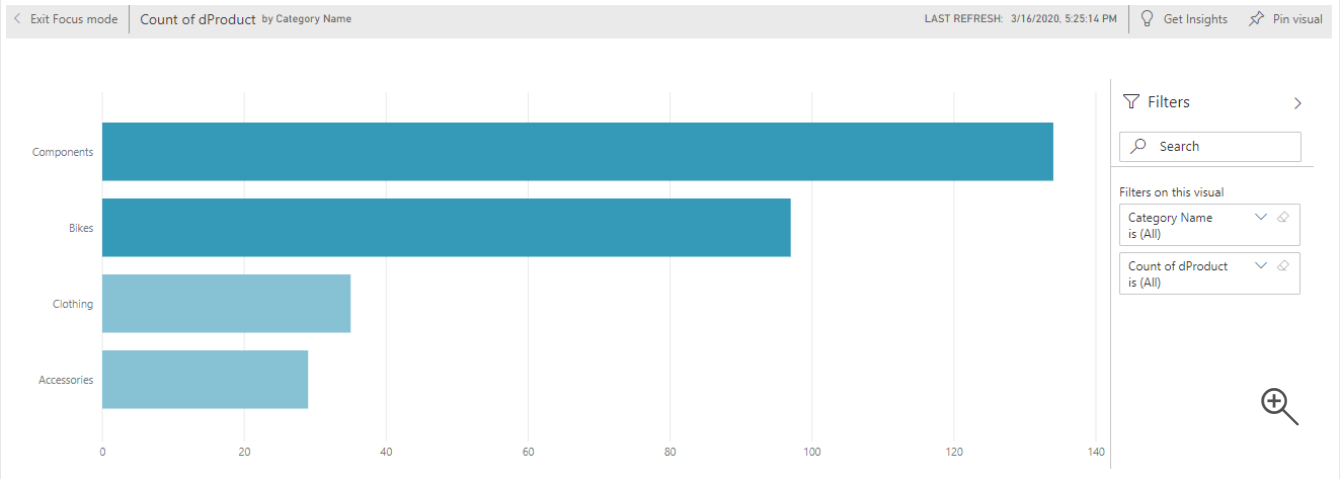
Select **View insights** to open the **Quick Insights** page for the selected dataset, and then view the insights that Power BI has found for you. The **Quick Insights** page contains up to 32 separate insight cards, and each card has a chart or graph plus a short description. In this example, one of the insights is a card that displays a visual for **Count of Product by Category Name**, as illustrated in the following image.

Add a Quick insights result card to a dashboard

If you see an insight card that is particularly compelling, you can add it to your dashboard. On the **Quick Insights** page, hover over the card, then select the pin icon. The visual is added to your dashboard, where you can reposition it as required.

Interact with the quick insights results

To take a closer look at a particular insight card on the **Quick Insights** page, select an insight card to open. The insight screen opens in **Focus** mode.



You can then perform the following actions:

- Filter the visualization by using the available options in the **Filters** panel.
- Pin the insight card to a dashboard by selecting **Pin visual**.
- Run insights on the card (scoped insights) by selecting **Get insights** in the upper-right corner. The scoped insights allow you to drill into your data.
- Return to the original insights canvas by selecting **Exit Focus mode** in the upper-left corner.

Next unit: Add a dashboard theme

Continue >

How are we doing? ☆ ☆ ☆ ☆ ☆

100 XP

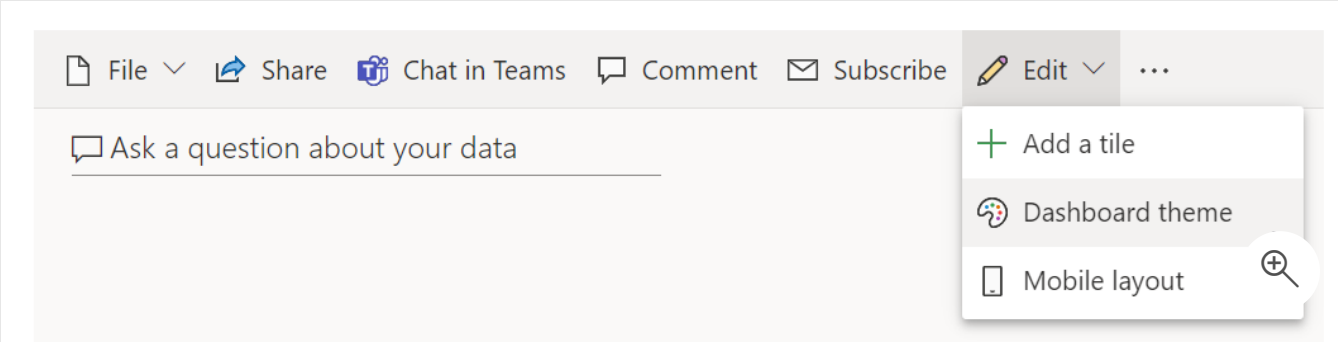
Add a dashboard theme

1 minute

When building dashboards, you should consider ensuring that the same theme is applied to your dashboards to create a cohesive picture. You could also apply a specific theme to reports and dashboards so that all report elements or tiles are uniform. This consideration is particularly important when you are building multiple dashboards. Power BI has the functionality to apply a theme directly to all visuals of a report.

Themes in Power BI

A variety of themes are available for use in Power BI service. Go to a dashboard, select the edit dropdown arrow, and then select **Dashboard theme**.



This selection will open a window, where you can choose from a variety of themes, including **Light** (the default theme), **Dark**, **Color-blind friendly**, and **Custom**, where you can create your own theme. You can also upload your own JSON theme or download the current theme.

Dashboard theme

Sales Figures

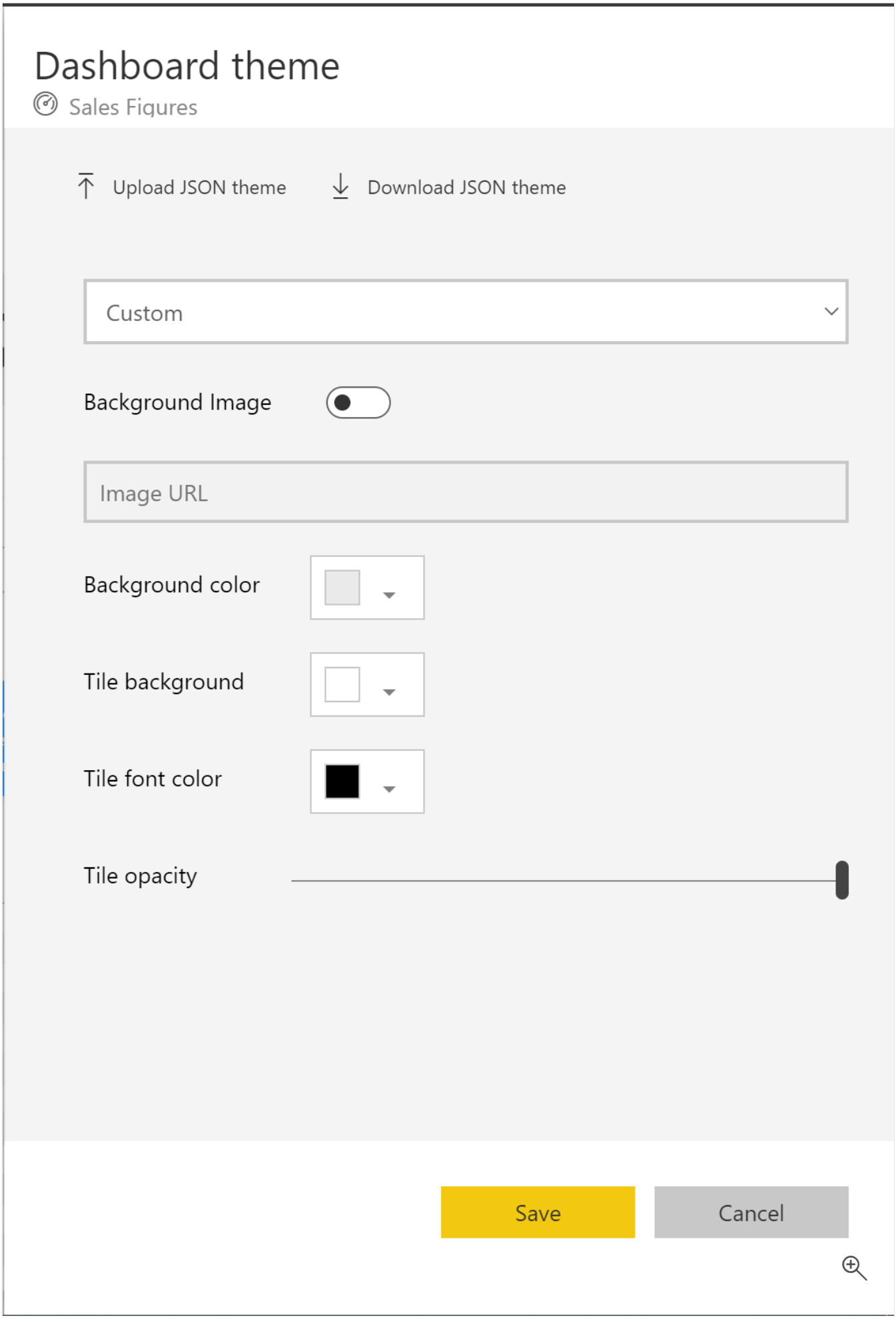
Upload JSON theme Download JSON theme

Light

- Light
- Dark
- Color-blind friendly
- Custom

Save Cancel

For instance, if you select **Custom**, you can add your own background image, or you can change the background color, tile color, the opacity, or even the font color, as shown in the following figure.



Now, you can customize your report to cater specifically to your needs.

100 XP

Pin a live report page to a dashboard

3 minutes

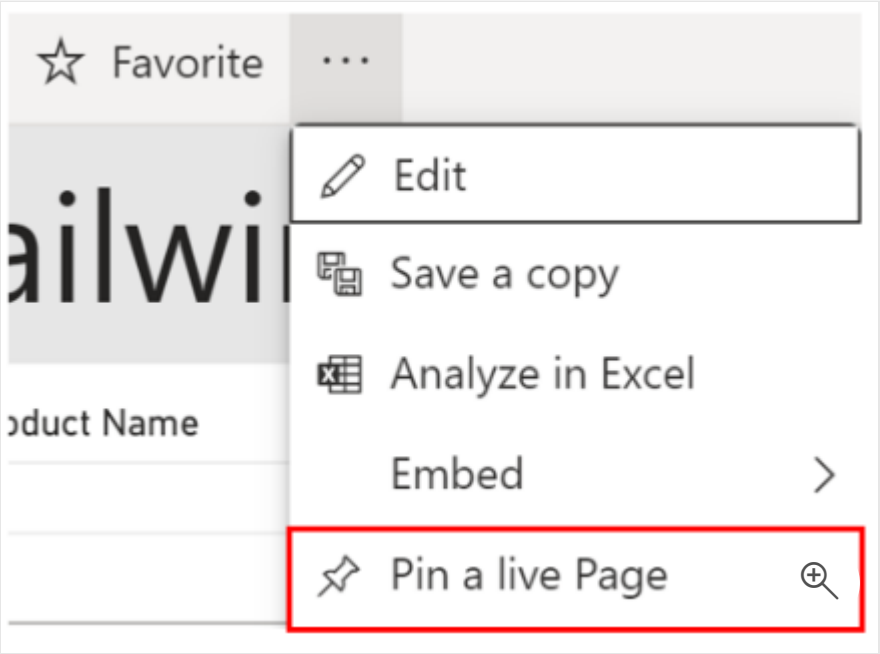
The process of building reports and dashboards is iterative. As data is constantly refreshed and business requirements change, it is expected that your reports and dashboards might also change; both in what filters or slicers you might have and also in what report elements, charts, and cards you have. For this reason, it is crucial that Power BI supports this iterative process. Through Power BI's innate functionality to pin live report pages to a dashboard, you can ensure that you aren't using old data and the visuals on your dashboards reflect changes live.

To continue the module scenario, you have built a few reports for Tailwind Toys. Several months go by, and the business requirements in the Sales team change, where they want you to change and add a few more visuals to the reports. When deploying your reports to Power BI service and creating dashboards, you want to ensure that you won't have to keep publishing new reports and dashboards every time a change occurs. You want to make sure that your changes are shown live. By using the pinning live reports to a dashboard feature from Power BI, you can complete this task in an intuitive manner.

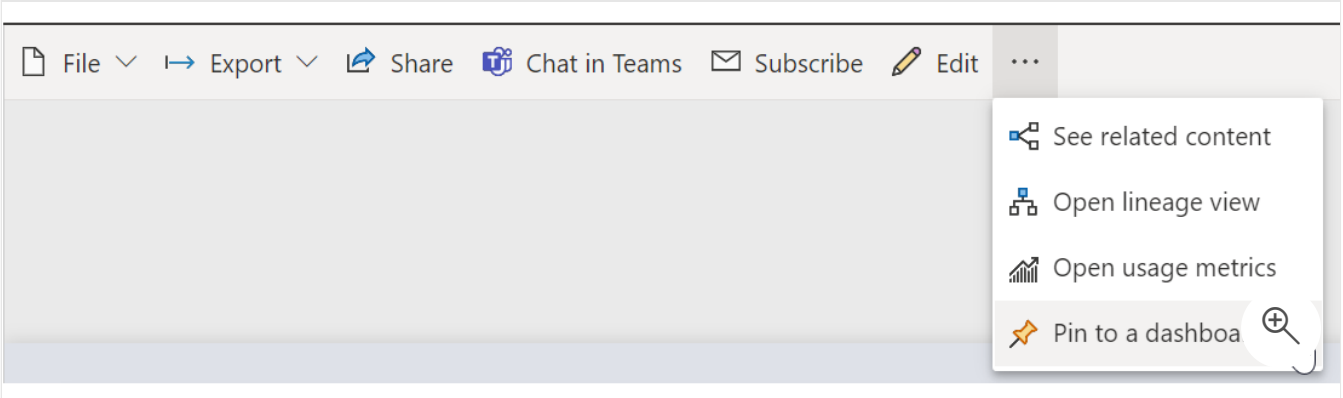
Pin a live page

When you pin a visual, you can add it to a new or an existing dashboard. You can do the same with entire reports; when you pin a report page, all visuals on the report will be pinned to a dashboard and they are also live, meaning that any changes you make on the report will be immediately reflected on the dashboard that you have pinned the report to.

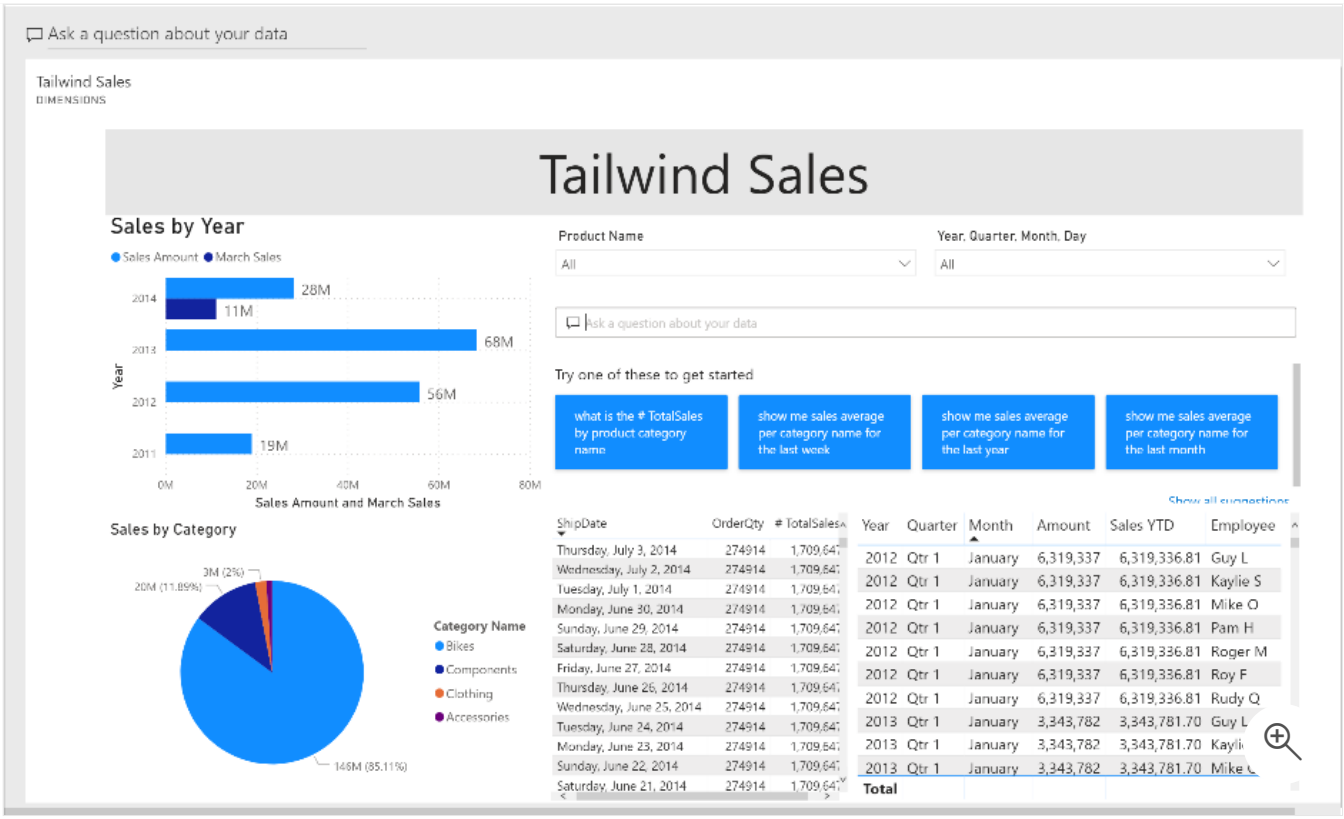
Pinning a live page is a simple way to pin all visuals at once so that you don't have to do any reformatting on the dashboard. To pin a live page, select the ellipsis (...) on the navigation bar of the report and then select **Pin to a dashboard**.



After you have made the selection, you can choose whether you want to pin this report to a new dashboard or an existing one. For this scenario, you want to pin your report to a new dashboard called **Sales Figures**.



After selecting **Pin live**, you will be redirected to a new window where you can see your dashboard. On the dashboard, you can modify the visuals as needed. Note that all your slicers and filters still work and that the visuals have the same data as in the report.



Any changes that you make to the tickets report will automatically show on the dashboard when the page is refreshed. In Power BI Desktop, you can make changes to your visuals or data as needed and then deploy to the appropriate workspace file, which will update the report and simultaneously update the dashboard as well.

You have now learned how to pin visuals as individual tiles and as entire live report pages. A word of caution: Dashboards are intended to be a collection from various sources, not just as a "launching pad" for reports. We recommend that you pin at the tile level first and foremost, and if needed, the entire report page can also be pinned. Seeing an entire report page in a dashboard tile can be difficult.

For more information, see Pin an entire report page.

Next unit: Configure a real-time dashboard

Continue >

How are we doing? ☆ ☆ ☆ ☆ ☆

100 XP

Configure a real-time dashboard

2 minutes

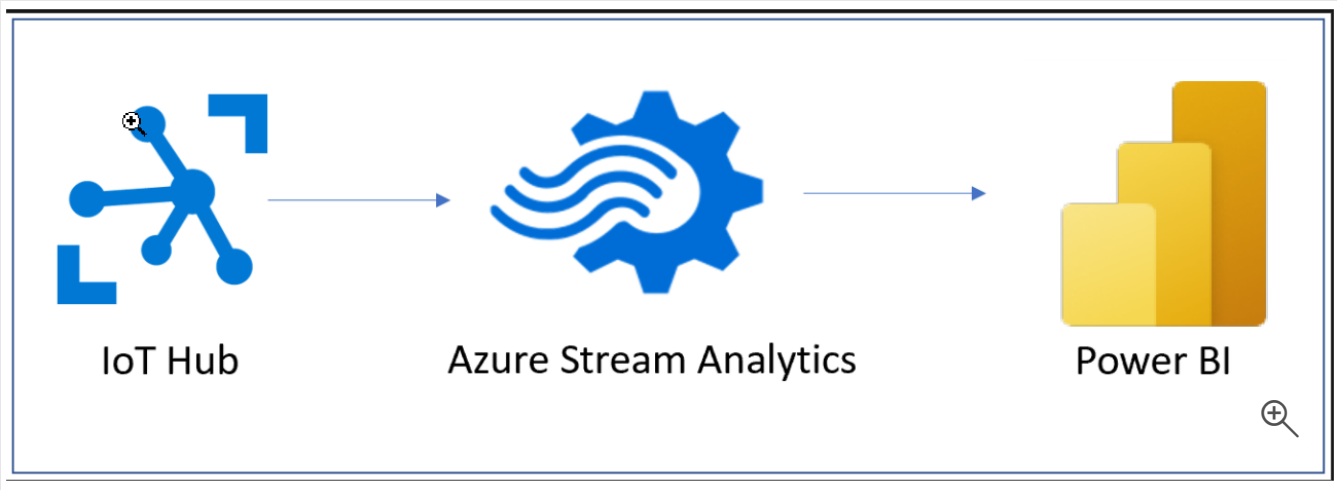
In this data-centric world, it has become increasingly important to be able to view how data changes in real time. This ability is important in the context of dashboards; these are the canvases on which you can tell the story of the data, so the ability to show real-time, streaming data on these dashboards can be important to your business. With Power BI's real-time streaming capabilities, you can stream data and update dashboards as soon as the data is logged.

To continue with the module scenario, you are helping Tailwind Traders understand how well their manufacturing floor is operating. The assembly line has machines that are broadcasting a telemetry event each time that they do their functions. You're collecting those event messages and want to display them with a Power BI visual. Dashboards allow you to use streaming datasets for this purpose.

Stream in Power BI

Streaming data can come from a variety of sources, including from social media, factory sensors, service-usage metrics, and other sources that contain a constant stream of data points.

For instance, in the case with Tailwind Traders, sensors on the machines constantly send a stream of telemetry data to the IoT hub, where they'll be housed in their native, messy format. From the IoT hub, you can use a stream insight job to aggregate the data, meaning that it will clean the data and quiet the noisy messages. Then, you can retrieve the data into Power BI as a streaming dataset, where you can consume the information and build the pertinent visuals.

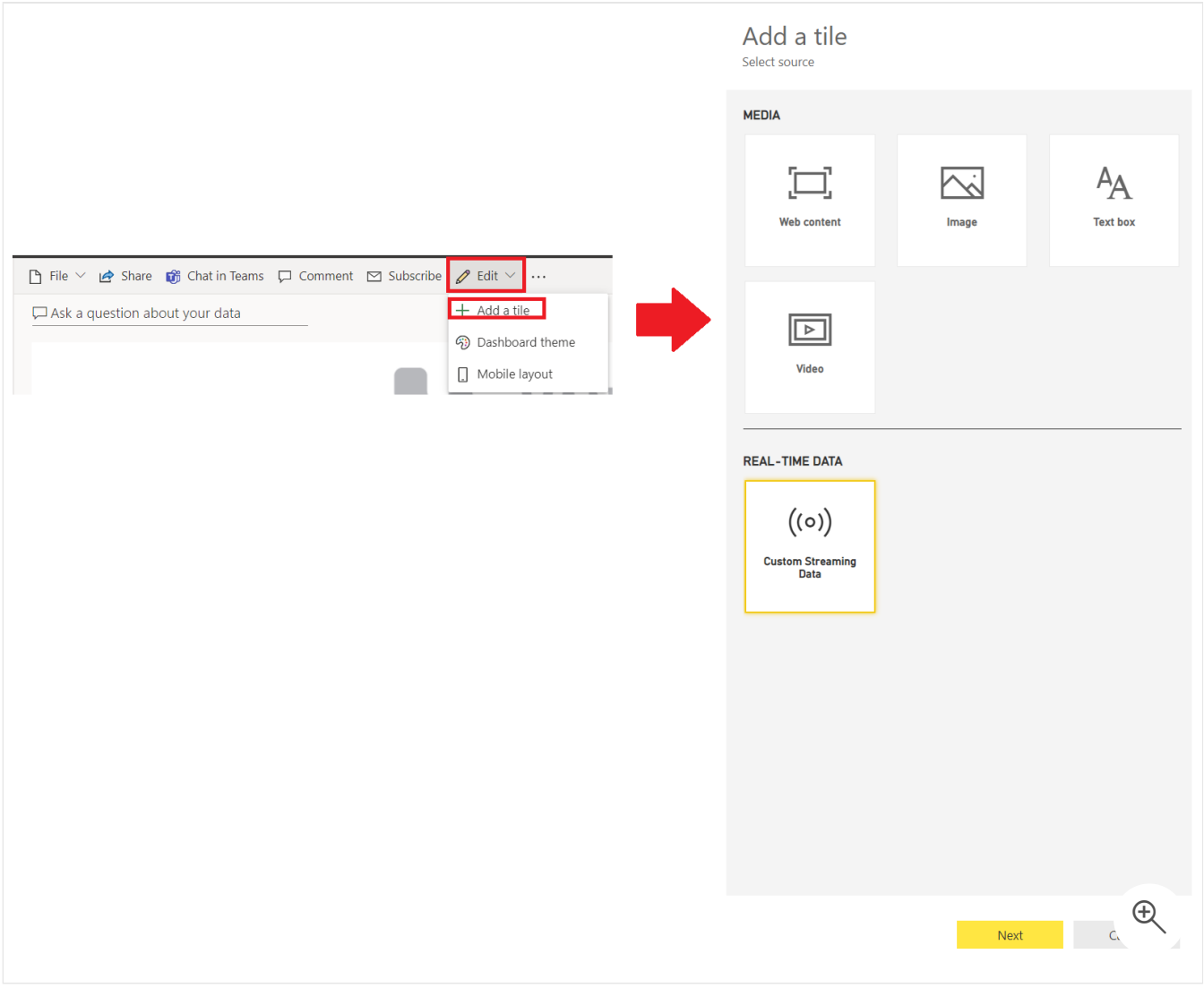


Data that comes from a streaming dataset isn't stored in a Power BI data model; instead, it's stored in a temporary cache. Consequently, you cannot model the data with this type of dataset. The only way to visualize the data from a streaming data source is to create a tile directly on a dashboard and use a custom streaming data source. These tiles are optimized for displaying the data quickly and, because no database exists to pull the data from, these types of tiles have low latency and are best suited for data that doesn't need additional transformations, such as temperature or humidity.

Visualize real-time data in Power BI

To visualize streaming data, you need to create a new tile directly on an existing or new dashboard.

To complete this task, go to and open an existing dashboard and then select the Edit drop down arrow and then **Add Tile**. The following window will appear, where you can select **Custom Streaming Datasets** under **Real-Time Data**.



Select **Next**, which will redirect you to the following window where you can choose an existing streaming dataset, or get new streaming datasets, as shown in the following image.

Add a custom streaming data tile

Choose a streaming dataset

+ Add streaming dataset

YOUR DATASETS

Manage datasets

Back | Next | Cancel

After you have selected the new dataset, select **Next**, enter the details for your streaming dataset, and then add a new streaming dataset tile. Streaming dataset tiles can be in the form of line charts, stacked bar charts, cards, and gauges and are formatted similarly to any other kind of tile.

For more information, see Real-time streaming in Power BI.

Next unit: Configure data classification

Continue >

How are we doing? ☆ ☆ ☆ ☆ ☆

Configure data classification

2 minutes

Power BI dashboards are an effective and visually pleasing way to disseminate information. They allow you to share business insights and concisely tell you the story of the data. However, because they can be seen by anyone who has been given access or a link, an important concern is security.

For instance, consider that you have built a few dashboards for the Sales team at your organization. You want to make sure that the users who have been given access know how the data within these dashboards is classified. Your organization has multiple ways to classify the data, and you want to incorporate and customize the data classification so that the dashboards have these custom classifications. Data classification in Power BI service allows you to complete this task.

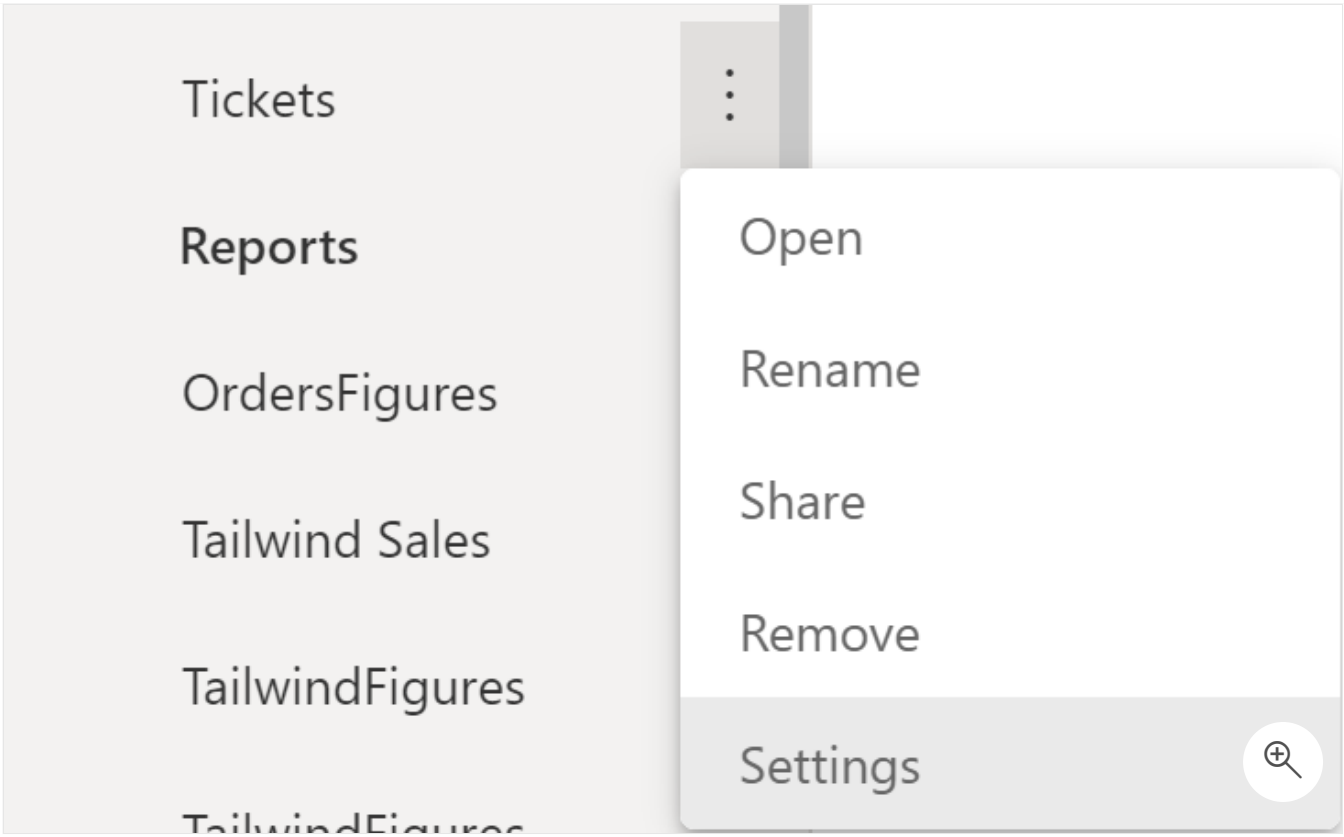
Set up data classification on dashboards

Data classification helps the dashboard owner raise security awareness to viewers of a dashboard so that they know what level of security should be considered when viewing or sharing a dashboard. Data classification does not enforce policies because data protection does.

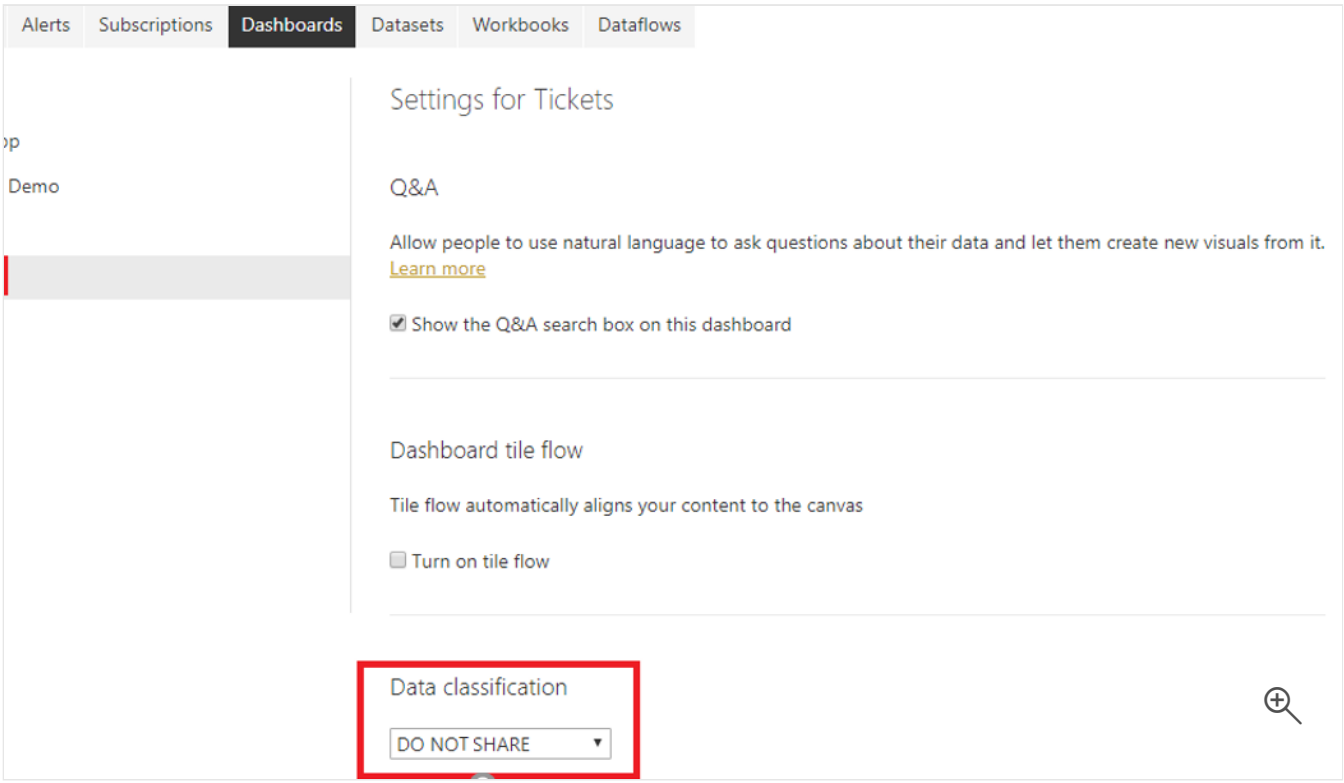
Data classification is a feature that can be turned on and off in accordance with your organization's business needs. All dashboards are defaulted to a certain classification type; however, the dashboard owner can manually make changes to the classification. To manually make changes, admin rights are required in Power BI service.

To continue with the module scenario, you are working on the **Tickets** dashboard and want to add data classification to it. The first action that you will need to take is to ensure that your organization's custom data classification settings are added into the Power BI system. Data classification is done by an administrator.

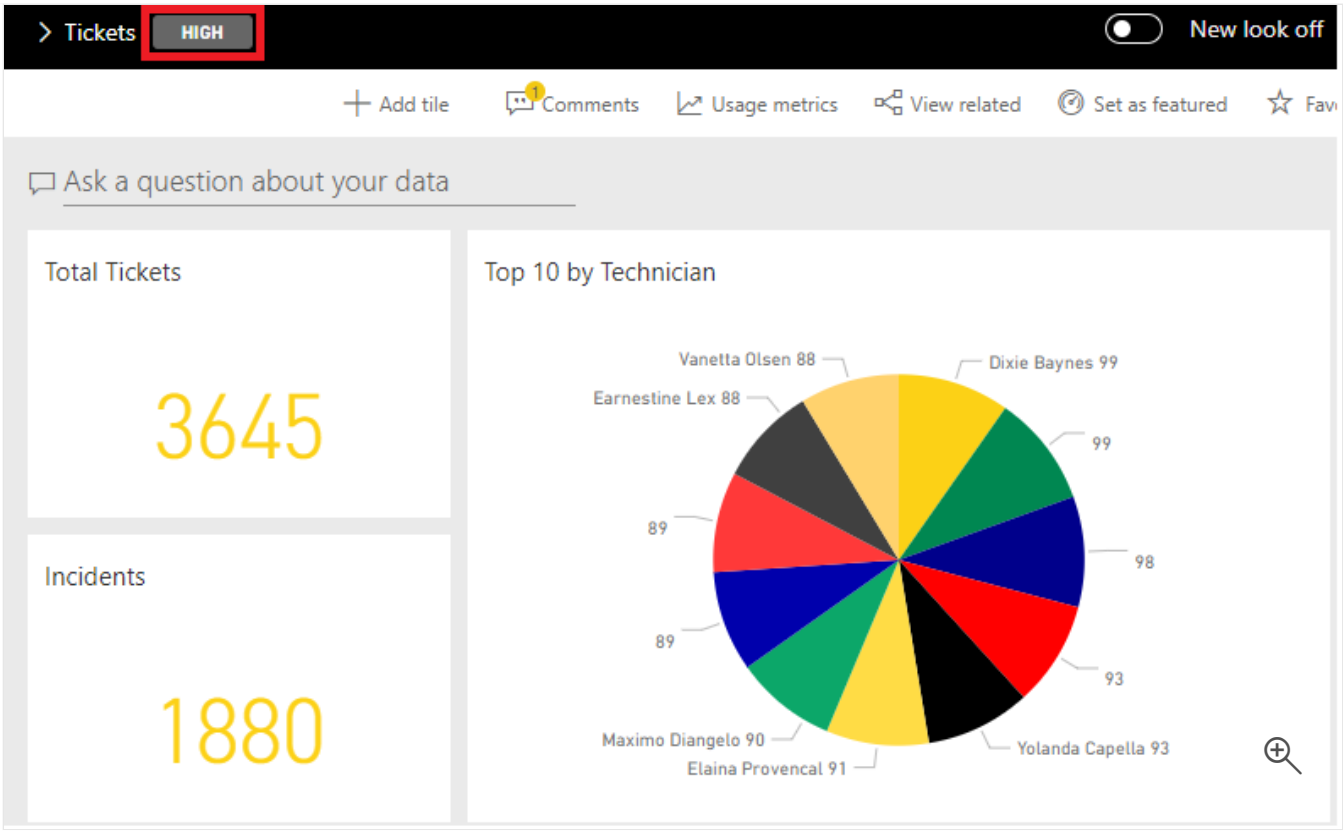
Next, you will have three classifications to choose from: **High Impact**, **Low Impact**, and **Medium Impact**, which can be added directly as well as the shorthand versions of these classifications. To access data classification on a dashboard, go to a specific dashboard in Power BI service. Hover over the ellipsis (**...**) by the name of the dashboard and then select **Settings**.



In the resulting window, under **Dashboards**, you can use the drop-down menu under **Data classification** to choose how you want the data to be classified. The **Tickets** dashboard contains highly sensitive information, so it must be marked as **High Impact.** After you have made this selection, the dashboard will follow the default data rules or the rules that you have established under **Tenant settings**.



When you open the dashboard, it will now be marked by this new data classification, as shown in the following screenshot.



You have now added custom data classification to your dashboards and the Sales team is pleased. Data classification is an important feature because it allows you to add a level of security to your Power BI dashboards. Additionally, because you can personalize them in any way that your organization requires, data classification also adds a layer of personalization to your dashboards.

For more information, see Dashboard data classification.

Next unit: Set mobile view

Continue >

How are we doing? ☆ ☆ ☆ ☆ ☆

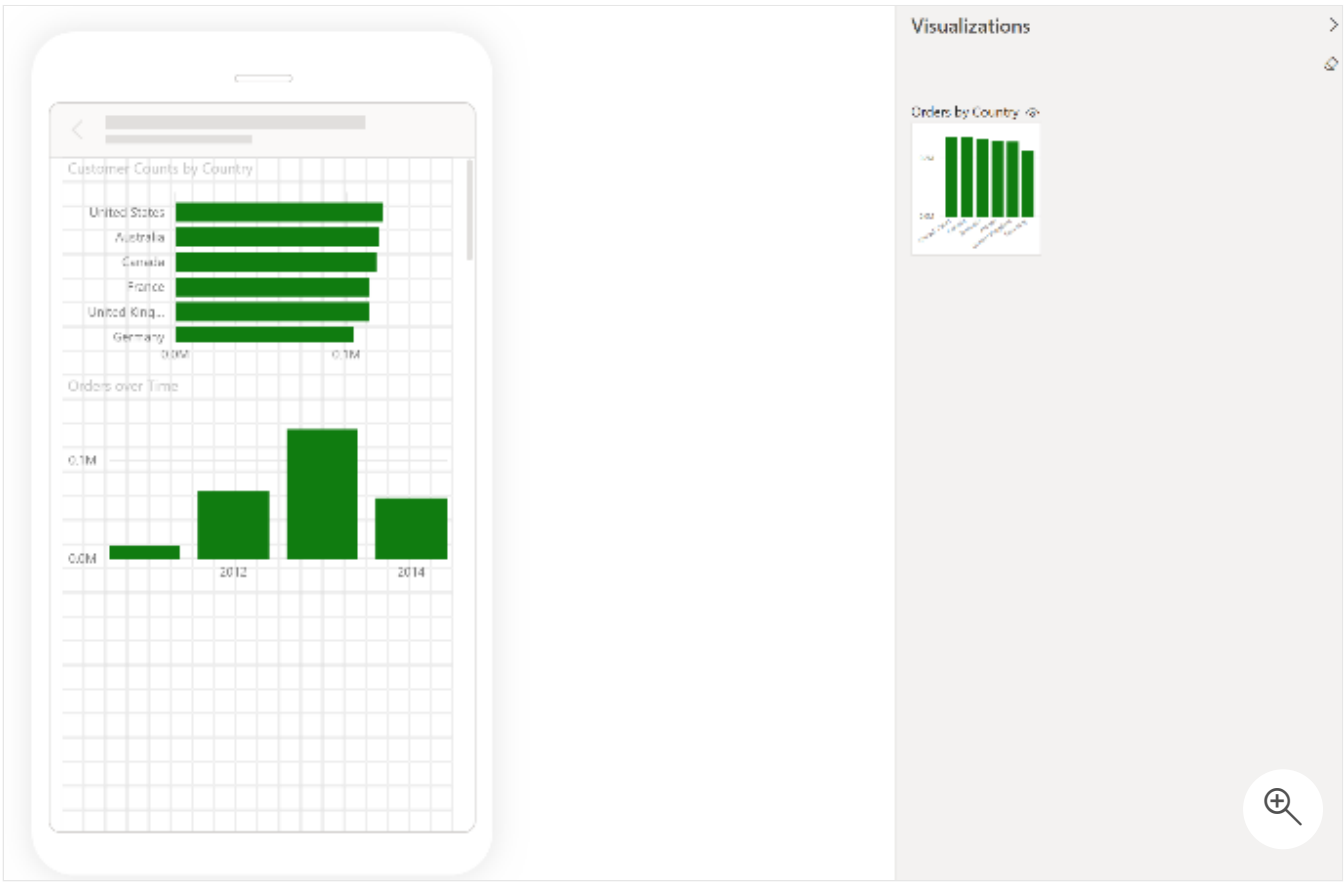
100 XP

Set mobile view

2 minutes

Power BI reports are built in Power BI Desktop and then deployed to Power BI service, where they can be viewed and shared. However, if you are building dashboards for the Sales team at your organization and you receive a requirement that the dashboards should also be viewable on mobile devices, Power BI will help you to set dashboards to mobile view.

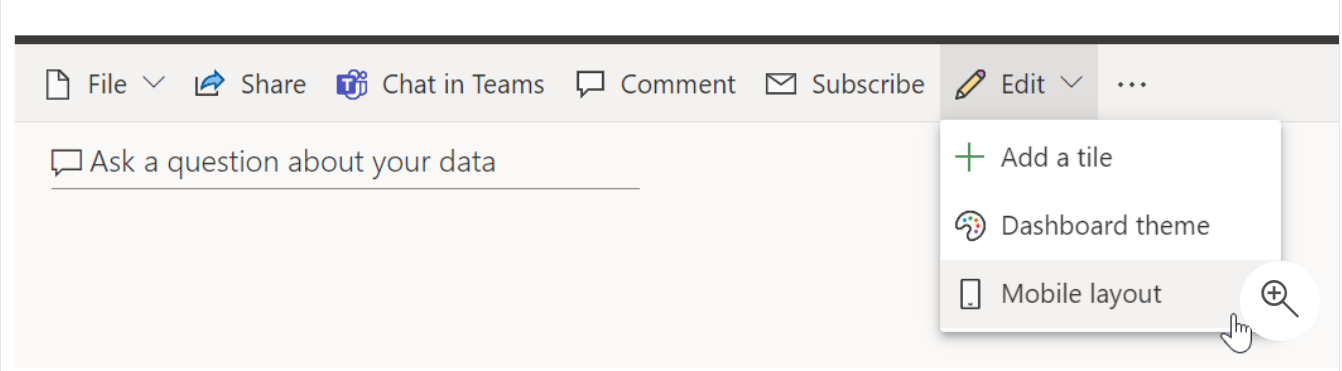
To navigate to mobile view in Power BI Desktop, select **View** on the ribbon and then select **Mobile Layout**, which will redirect you to the mobile view, as shown in the following figure.



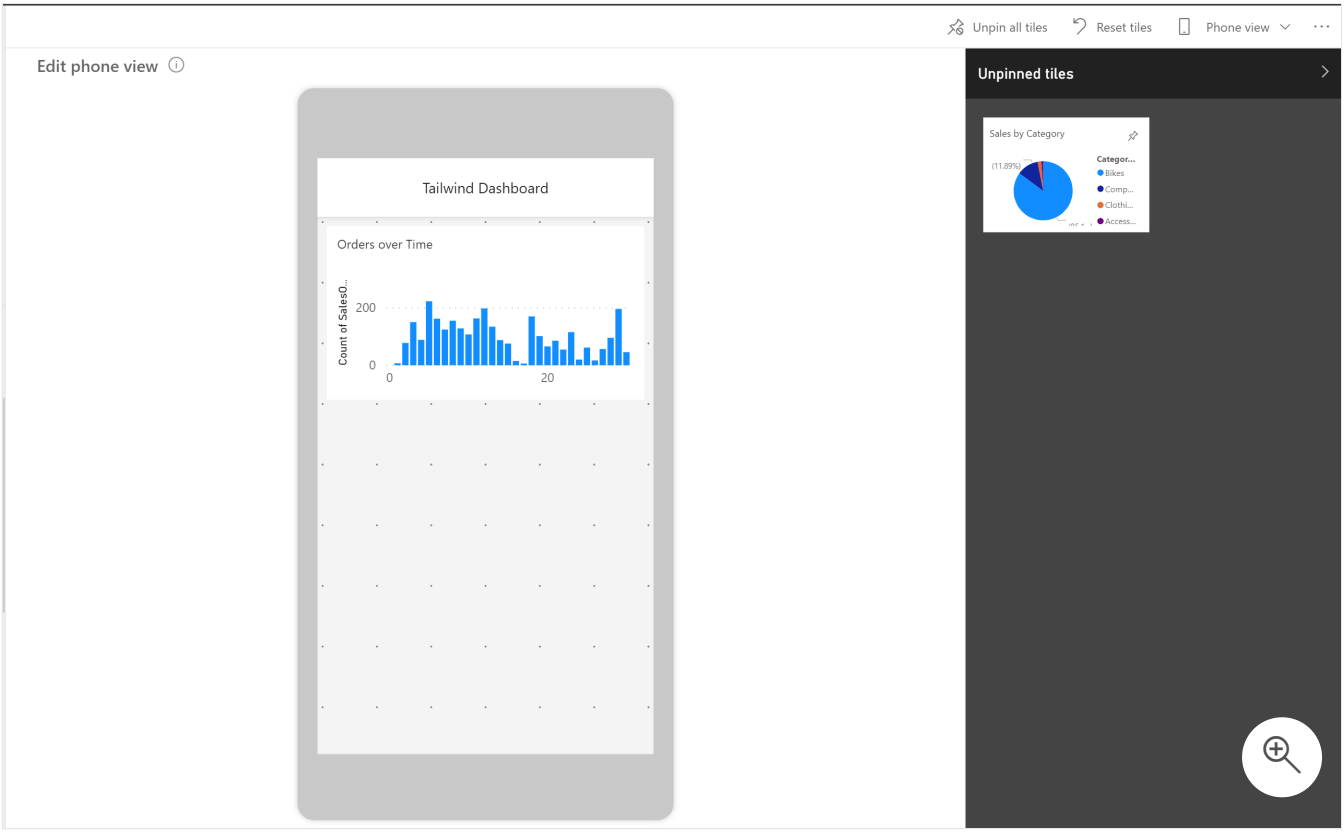
In the mobile view in Power BI Desktop, you are able to accomplish several tasks. This view emulates the view of a user who is looking at visuals on their phone, so you can add visuals to this view, resize them, and change the formatting on them, as shown in the ensuing screenshot. In the June 2020 release of Power BI Desktop, a new grid has been added to this view so that you can orient your visuals with more ease and overlay visuals on top of each other. This feature can be useful if you want to insert a visual on top of an image.

After you have published to Power BI service, you can view your visuals on a mobile device.

Alternatively, you can also optimize your dashboards for mobile view in Power BI service. To see a dashboard in mobile view, select the Edit drop down arrow on the home ribbon and select **Mobile layout**, as shown in the following Sales dashboard.



This selection will take you to the following view, where you can choose which tiles that you want to see on the phone view.



You can also resize and reorient the tiles and visuals in whichever order you want. This phone view is customizable for each person who uses the dashboard; selecting **Phone view** will allow you to create a new view that you can see on your phone when signing in to Power BI service.

For more information, see Optimize a dashboard for mobile phones.

Next unit: Exercise - Create a Power BI dashboard

Answer the following questions to see what you've learned.

1. What is a dashboard? *

- ○ A canvas of report elements that can be built in Power BI Desktop.

  ✗ Incorrect. Dashboards cannot be created in Power BI Desktop.

- ○ A canvas of report elements that can be built in Power BI service.

  ✓ Correct. Dashboards can only be built in Power BI service.

- ○ The canvas in which you can view the data model of a report

2. What is one way that reports and dashboards differ? *

- ○ They are the same.
- ○ In reports, you can have multiple pages; in dashboards, you can have only one page.

  ✓ Correct. You can have only one-page dashboards, but you can have multiple page reports.

- ○ You can only build reports and dashboards in Power BI service.

3. Where can you configure and set data alerts? *

- ○ Data alerts can be set only in Power BI service on specific visuals such as KPI cards, gauges, and cards.

  ✓ Correct. Data alerts can be set only in Power BI service on specific visuals.

- ○ Data alerts can be set in both Power BI service and Power BI Desktop on any kind of visual.

  ✗ Incorrect. Data alerts can be set only in Power BI service on specific visuals.

- ○ Data alerts can be set in Power BI service on any kind of visual.

Next unit: Summary

100 XP

Introduction

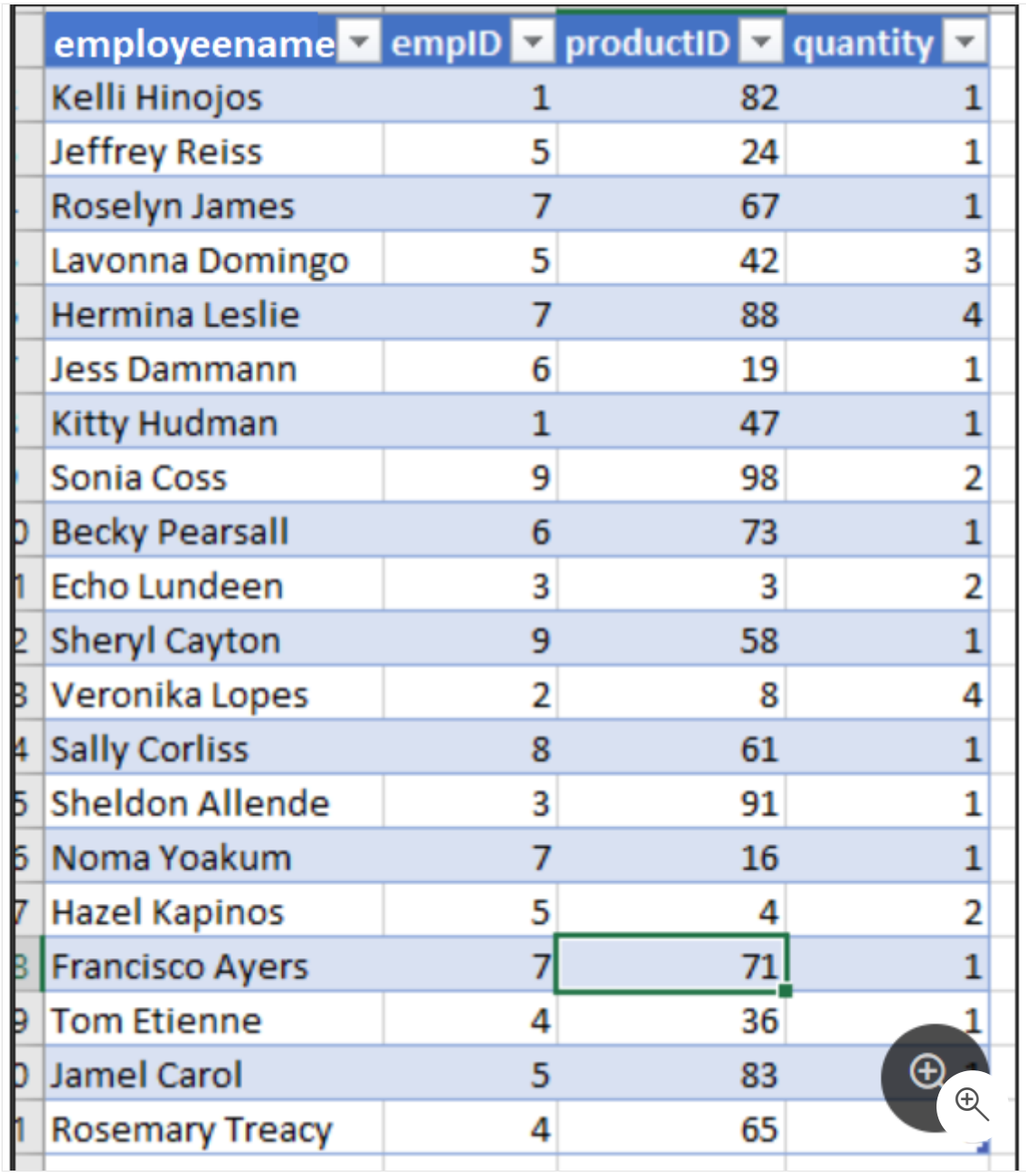
1 minute

Microsoft Power BI can help you secure reports and workspaces by allowing you to share them to active directory users and groups. You can also share a single report but have users see different data according to their job role.
https://www.microsoft.com/en-us/videoplayer/embed/RWFJCU?postJsllMsg=true

For example, consider a scenario where you work for Tailspin Traders. You use the following table to track sales.

employeename	empID	department	product	qty	price	orderAmount
Kelli Hinojos	1	Game	Settlers of Air	1	24.99	24.99
Jeffrey Reiss	5	Sports	Driver - Stiff Shaft	1	399.99	399.99
Roselyn James	7	Clothing	V-Neck T-Shirt	1	19.99	19.99
Lavonna Domingo	5	Sports	Golf Balls - Dual Core	3	32.5	97.5
Hermina Leslie	7	Clothing	Athletic Shorts	4	17.75	71
Jess Dammann	6	Automotive	Tire Guard	1	44.99	44.99
Kitty Hudman	1	Game	Santo Domingo	1	31	31
Sonia Coss	9	Clothing	Leather Sandels	2	111.97	223.94
Becky Pearsall	6	Automotive	True Coat	1	980	980
Echo Lundeen	3	Sports	Frisbee Golf Set	2	98	196
Sheryl Cayton	9	Clothing	Hoodie	1	44.99	44.99
Veronika Lopes	2	Automotive	Window Scrape	4	9.99	39.96
Sally Corliss	8	Game	Lords of Avalon	1	19.99	19.99
Sheldon Allende	3	Sports	Putting Green	1	59.25	59.25
Noma Yoakum	7	Clothing	Bathing Trunks	1	42.99	42.99
Hazel Kapinos	5	Sports	Weighted Bands	2	8.99	17.98
Francisco Ayers	7	Clothing	Hoodie	1	44.99	44.99
Tom Etienne	4	Game	Spider, spider	1	44.5	5
Jamel Carol	5	Sports	Boxing gloves	1	99	
Rosemary Treacy	4	Game	Invest in it All	1	31.99	

You can also use the following table for employee information.



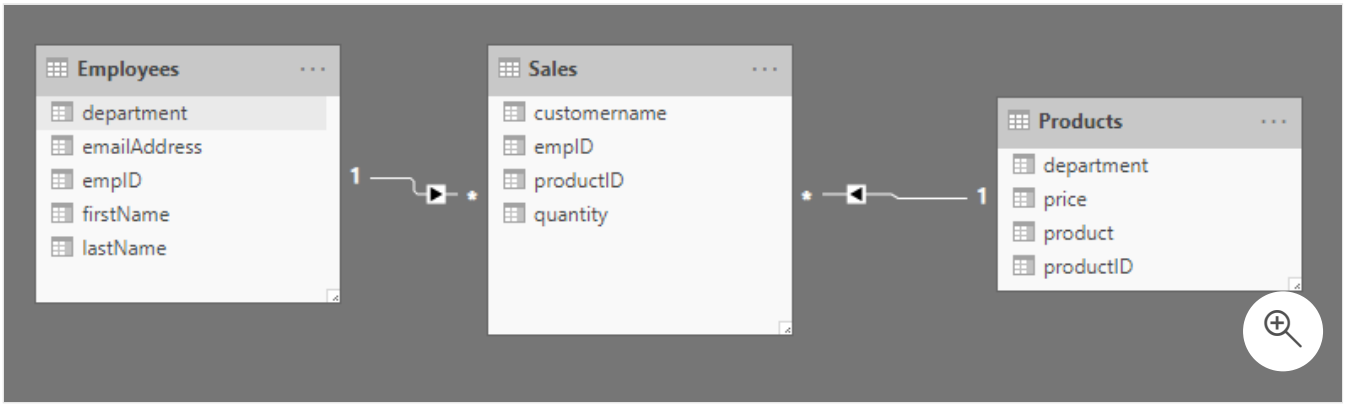
	employeename	empID	productID	quantity
	Kelli Hinojos	1	82	1
	Jeffrey Reiss	5	24	1
	Roselyn James	7	67	1
	Lavonna Domingo	5	42	3
	Hermina Leslie	7	88	4
	Jess Dammann	6	19	1
	Kitty Hudman	1	47	1
	Sonia Coss	9	98	2
0	Becky Pearsall	6	73	1
1	Echo Lundeen	3	3	2
2	Sheryl Cayton	9	58	1
3	Veronika Lopes	2	8	4
4	Sally Corliss	8	61	1
5	Sheldon Allende	3	91	1
6	Noma Yoakum	7	16	1
7	Hazel Kapinos	5	4	2
8	Francisco Ayers	7	71	1
9	Tom Etienne	4	36	1
0	Jamel Carol	5	83	
1	Rosemary Treacy	4	65	

The following table shows the list of products.

productID	department	product	price
3	Sports	Frisbee Golf Set	98
4	Sports	Weighted Bands	8.99
8	Automotive	Window Scrape	9.99
16	Clothing	Bathing Trunks	42.99
19	Automotive	Tire Guard	44.99
24	Sports	Driver - Stiff Shaft	399.99
36	Game	Spider, spider	44.5
42	Sports	Golf Balls - Dual Core	32.5
47	Game	Santo Domingo	31
58	Clothing	Hoodie	44.99
61	Game	Lords of Avalon	19.99
65	Game	Invest in it All	31.99
67	Clothing	V-Neck T-Shirt	19.99
71	Clothing	Hoodie	44.99
73	Automotive	True Coat	980
82	Game	Settlers of Air	24.99
83	Sports	Boxing gloves	99
88	Clothing	Athletic Shorts	17.75
91	Sports	Putting Green	
98	Clothing	Leather Sandels	111.97

You want to make one report where employees in a specific department can only see the sales for that department. For instance, Maria Cameron works in the Game department and should only see the sales from that department, not sales from the Sports, Clothing, or Automotive departments.

This data is organized in a star schema. The Sales table contains all attributes of a fact table, while employees and products are dimension tables. The data model is shown in the following screenshot.



Two ways of implementing row-level security in Power BI are the static method and the dynamic method.

Row-level security (RLS) uses a DAX filter as the core logic mechanism. This module will demonstrate how you can implement row-level security in Power BI by using DAX to ensure that only the appropriate person can view the appropriate records.

100 XP

Configure row-level security with the static method

4 minutes

The static method in row-level security (RLS) uses a fixed value in the DAX filter, while the dynamic method uses a DAX function.

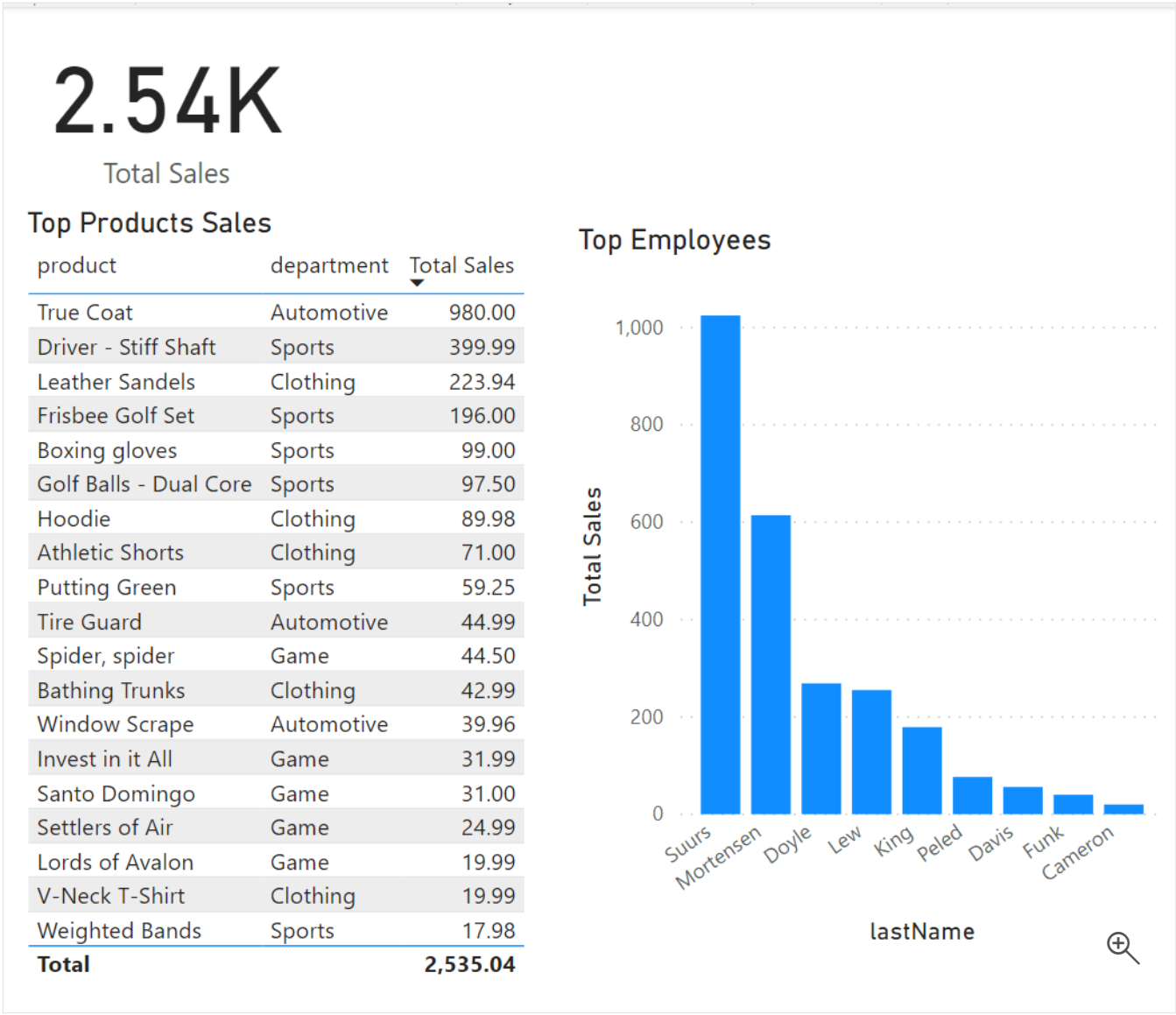
RLS involves several configuration steps, which should be completed in the following order:

1. Create a report in Microsoft Power BI Desktop.
    a. Import the data.
    b. Confirm the data model between both tables.
    c. Create the report visuals.
2. Create RLS roles in Power BI Desktop by using DAX.
3. Test the roles in Power BI Desktop.
4. Deploy the report to Microsoft Power BI service.
5. Add members to the role in Power BI service.
6. Test the roles in Power BI service.

Create a report in Power BI Desktop

Follow the typical steps to create a report in Power BI Desktop. Use Microsoft Power Query to retrieve and clean the data. Then, confirm that the relationship exists between the two tables by using the **Modeling** tab; it should be a one-to-many relationship on the **empID** column.

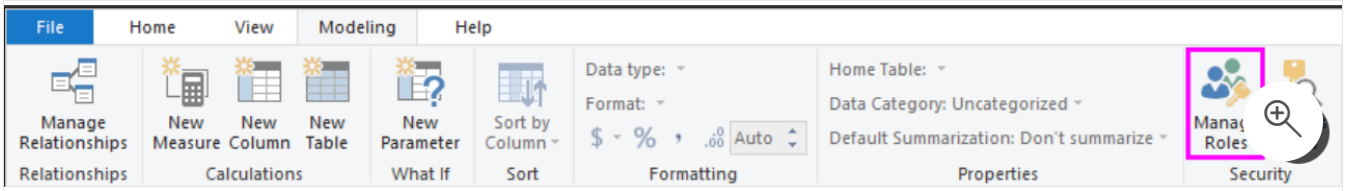
Your next step is to create a Power BI report.



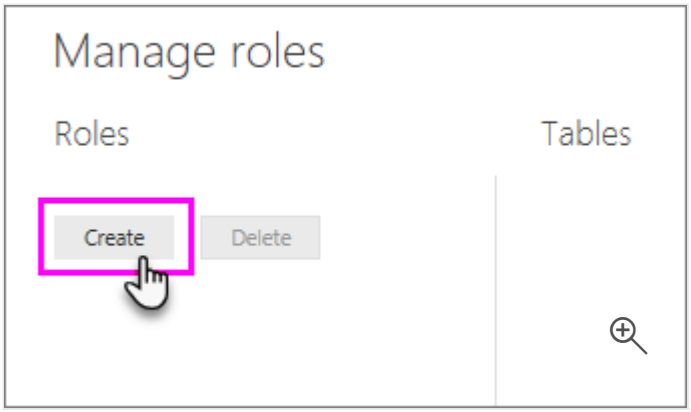
Notice how the preceding table has rows for all sales, including all departments. You will be limiting visibility so that only employees of a specific department can see their own sales.

Create RLS roles in Power BI Desktop

To create RLS roles in Power BI Desktop, select the **Modeling** tab, and then select **Manage Roles**.



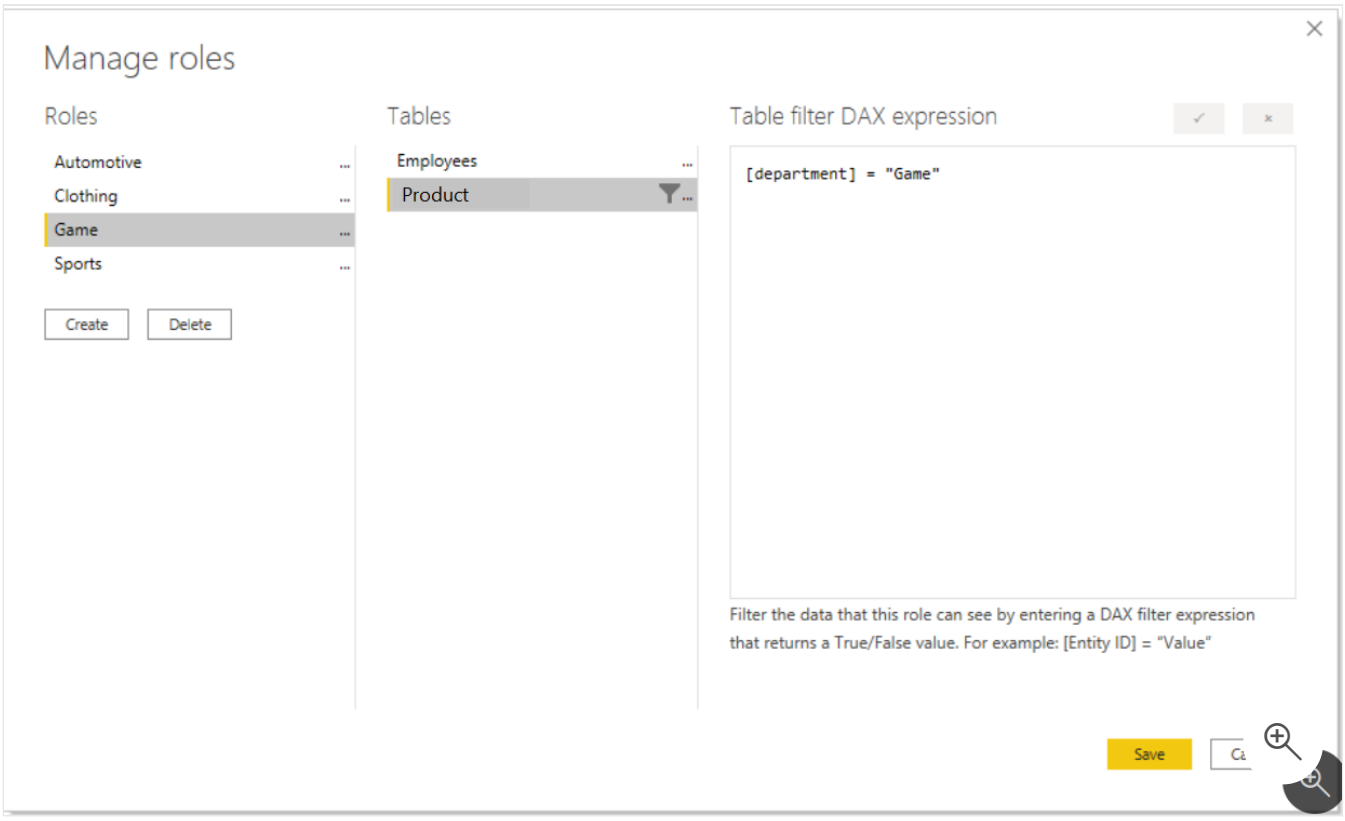
On the **Manage roles** page, select **Create**.



Power BI row-level security (RLS) uses DAX to control who can see which data. Consider it as always adding another filter to the appropriate users, regardless of the filters, slicers, or interactions that the users choose on a Power BI report.

On the **Manage roles** page, create a role for each department and then add a DAX expression to it. For instance, you can create a role called **Game** and then add the DAX expression **[department]** = "**Game**". Then, whenever a member of that role interacts with the report, Power BI will add that filter to their interactions, thus limiting what they see.

A fixed value is used in the filter on the right side of the equal sign (in this case, "Game"). The intention is that, if you ever need to add a category, you will need to create a new role with a new value in the DAX expression.

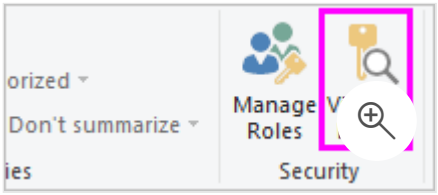


Notice how the DAX filter is applied on the dimension table. Row-level security performs better when the data is organized in a star schema. Apply the DAX filter to a dimension table, as was done with the Products table.

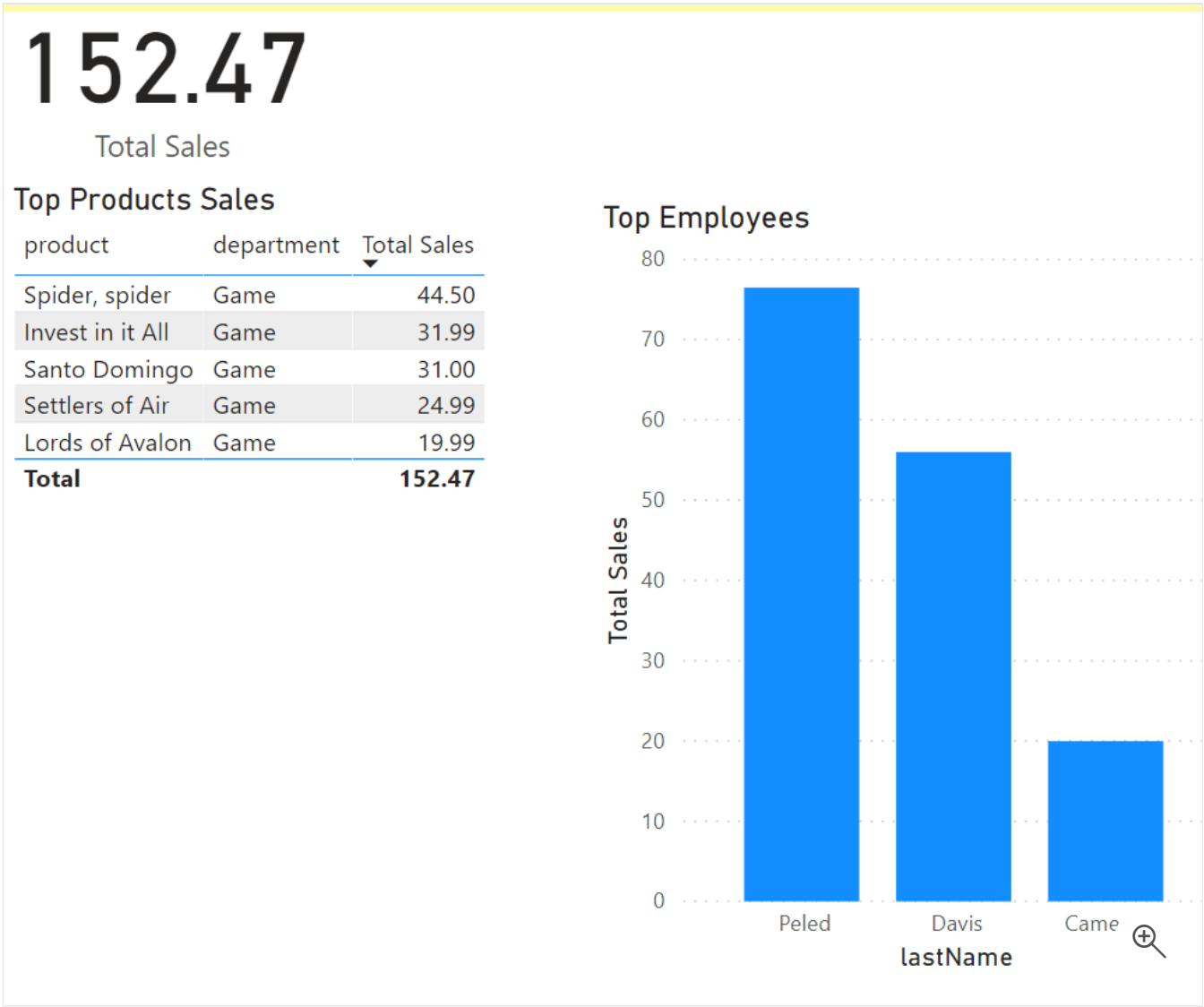
The DAX filter is applied to every interaction, slicer, and filter that the user applies. If you have a DAX filter that performs poorly, the user experience will be negatively impacted. Therefore, keep the DAX filter as simple as possible.

Test the roles in Power BI Desktop

You can validate that the filter is working by selecting the **Modeling** tab and then selecting **View as Roles**.



In the **View as roles** window, select the **Game** role. The report now renders as if you were in that role, and you will only see the records that are included in the Game department.



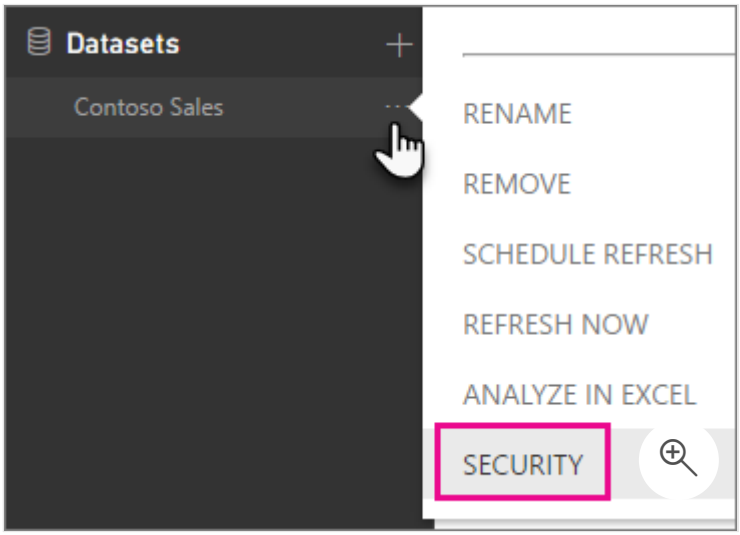
You can undo this filter by selecting **View as roles** again and then selecting **None**.

Deploy the report to Power BI service

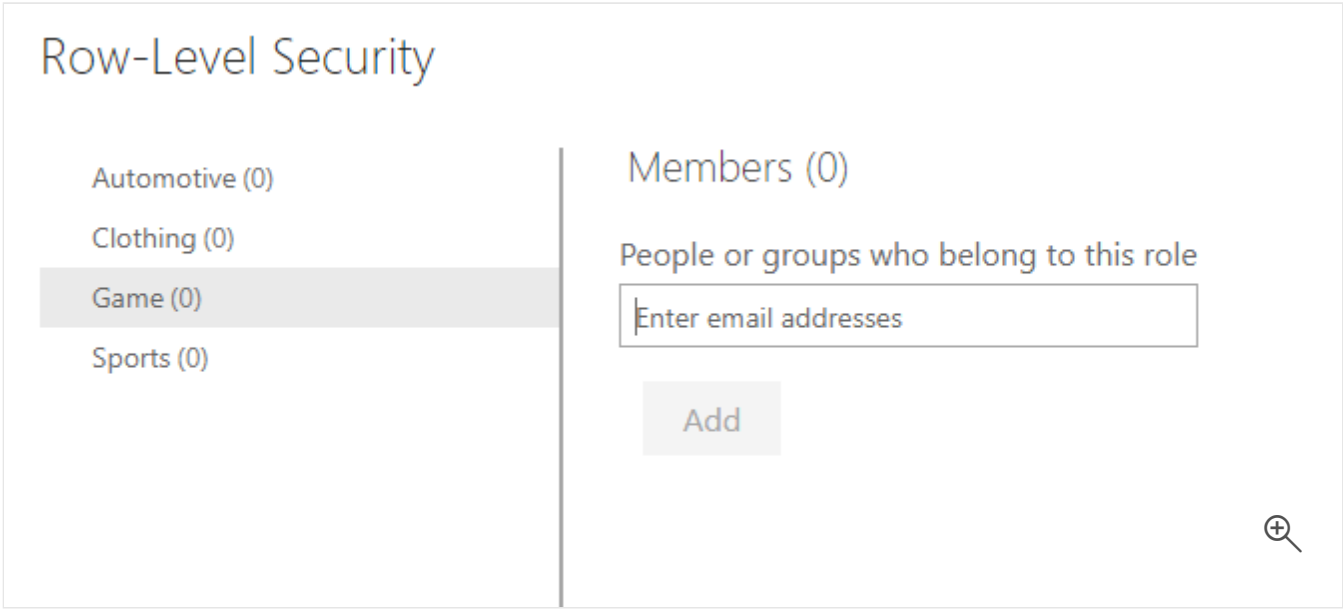
You can deploy the report to Power BI service by selecting the **Publish** button on the **Home** tab and then selecting a workspace.

Add members to the role in Power BI service

To add members to the role in Power BI service, go to your workspace in Power BI service. Find the dataset that you created with the same name as your report. Select the ellipsis (...) button and then select **Security**.

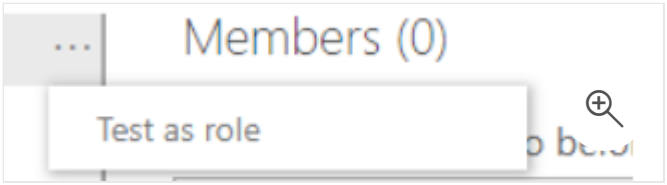


In the **Row-Level Security** screen, you can add Microsoft Azure Active Directory (Azure AD) users and security groups to the security role. When members are added to this role, the DAX filter that you previously defined will be applied to them. If members are not added to the role, but they have access to the report, RLS will not apply to them. You can add the three people in the Game department to the **Game** role. Now, when those members sign in, they will only see the report with data that applies to them.



Test the roles in Power BI service

You can test the roles inside Power BI service by selecting the ellipsis (...) next to the **Game** role on the **Row-Level Security** screen and then selecting **Test as role**.



This selection will display the report as if you were a member of the role in Power BI service.

And there you have it! We've successfully implemented row-level security in Power BI.

Next unit: Configure row-level security with the dynamic method

Continue >

How are we doing? ☆ ☆ ☆ ☆ ☆

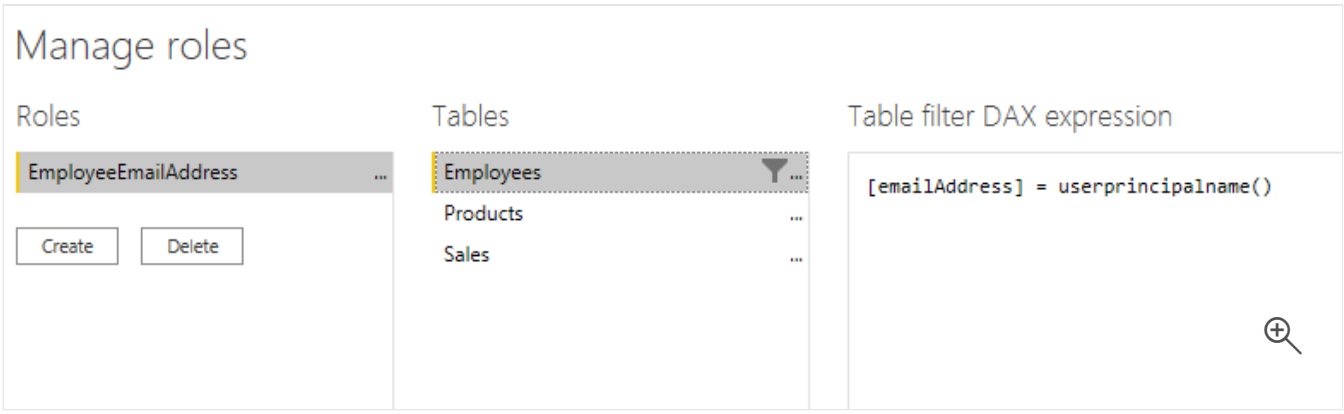
100 XP

Configure row-level security with the dynamic method

1 minute

You can set up row-level security only once, without the need to continue maintaining it dynamically.

As the admin at Tailwind Traders, you want Power BI row-level security to only show sales to the person who made them. In this example, Russel King has made four sales. When viewing your report, Russel should only see the sales that he's responsible for and no other sales. You can configure row-level security exactly the way you configured it previously, with only a single change. Instead of creating four roles, you only need to create one role. The DAX filter for that role would look similar to the following image.



Notice that instead of the fixed string, such as **Game** or **Clothing**, this uses a DAX function in the row-level security filter. The `userprincipalname()` function will compare the email address from the Employees table with the email that the user entered when signing in to Power BI service. If Russel King uses the email address `russel@tailwindtraders.com` to sign in to Power BI service, the system will compare that value to the email address in the Employees table. Assuming that a relationship has been created between Employees and Sales, Russel will only see his four sales.

Next unit: Exercise - Enforce row-level security in Power BI

Continue

200 XP

Check your knowledge

2 minutes

Answer the following questions to see what you've learned.

1. Which function will tell you the username of the person who is signed in to Power BI service? *

- [ ] USERPRINCIPALNAME()

  ✔ The USERPRINCIPALNAME() function will tell you which user is signed in to view a report.

- [ ] LOOKUPVALUE()
- [ ] USEROBJECTID()

2. Where can you test RLS by using different security roles? *

- [ ] Power BI Desktop only
- [ ] Power BI service only

  ✘ You can use Power BI Desktop and Power BI service to test RLS.

- [ ] Both Power BI Desktop and Power BI service

  ✔ You can use Power BI Desktop and Power BI service to test RLS.

Next unit: Summary

Continue

Practice Assessment for Exam PL-300: Microsoft Power BI Data Analyst

Question 43 of 50

You need to create a Power BI dashboard.

Which tool should you use?

- ◯ Power BI Desktop
- ◯ Power Query Editor
- ◯ the Power BI mobile app
- ◯ the Power BI service

✓This answer is correct.

The Power BI service provides support for creating Power BI dashboards. The Power BI mobile app can be used to view dashboards, but not to create them. Power BI Desktop does not provide support for creating Power BI dashboards. Power Query is a Microsoft Excel tool that is used for importing data, but not for creating dashboards.

Introduction to dashboards - Training | Microsoft Learn

Next > Check Your Answer

Practice Assessment for Exam PL-300: Microsoft Power BI Data Analyst

Question 44 of 50

You need to create a dashboard from a published report in Power BI.

Which option in the report should you use?

- ◯ Copy visual as image

  This answer is incorrect.

- ◯ Export data
- ◯ Pin visual

  ✓**This answer is correct.**

- ◯ Spotlight

The Pin visual option allows you to pin the visual to an existing dashboard or create a new one. The Copy visual as image option allows you to copy a visual as an image to Clipboard. The Export data option allows you to export data in the xlsx or csv formats, but not create a dashboard. The Spotlight option allows you to highlight a visual on the report page, but not create a dashboard.

Introduction to dashboards - Training | Microsoft Learn

Next > Check Your Answer

Practice Assessment for Exam PL-300: Microsoft Power BI Data Analyst

Question 45 of 50

You plan to build a Power BI dashboard and set up alerts that will notify you when data presented in the visuals on the dashboard reach specific thresholds.

Which three types of visuals support the alert functionality? Each correct answer presents a complete solution.

- [x] card
  ✓This answer is correct.
- [x] gauge
  ✓This answer is correct.
- [x] KPI
  ✓This answer is correct.
- [ ] treemap
- [ ] waterfall

Alerts are available with KPI visuals, gauges, and cards. Treemaps and waterfall visuals do not support alerts.
Configure data alerts - Training | Microsoft Learn

Next > Check Your Answer

Practice Assessment for Exam PL-300: Microsoft Power BI Data Analyst

Question 46 of 50

You plan to certify a Power BI dataset.

You need to identify at which level within your organization the permissions to certify a dataset are assigned.

Which level should you identify?

- ○ Dataset
- ◉ Tenant

✓This answer is correct.

- ○ Workbook
- ○ Workspace

Admin users who have permissions to certify a dataset are defined in the Dataset Certification tenant admin setting.
Manage and promote datasets - Training | Microsoft Learn

Next > Check Your Answer

Practice Assessment for Exam PL-300: Microsoft Power BI Data Analyst

Question 47 of 50

You manage a Power BI workspace in shared capacity. The workspace contains a dataset named DS1. You plan to schedule the refresh of DS1.

What is the maximum number of data refreshes per day?

- ◯ 1
- ◯ 4
- ◉ 8

✓This answer is correct.

- ◯ 24

The maximum number of refreshes per day for a Power BI workspace in a shared capacity is 8.

Configure a dataset scheduled refresh - Training | Microsoft Learn

Next > Check Your Answer

Practice Assessment for Exam PL-300: Microsoft Power BI Data Analyst

Question 48 of 50

You manage a Power BI workspace in shared capacity. The workspace contains a report that uses a dataset named DS1.

You need to implement an incremental refresh of DS1.

What should you do first?

- ◯ In Power BI Desktop, define filter parameters.

  ✓This answer is correct.

- ◯ In Power BI Desktop, define the incremental refresh policy.

  This answer is incorrect.

- ◯ Publish the dataset to the Power BI service.
- ◯ Upgrade the Power BI workspace to the Premium SKU.

To implement an incremental refresh of the dataset, you first need to define an incremental refresh policy, which, in turn, requires defining filter parameters. An incremental refresh policy does not require upgrading to a Premium SKU. Publishing the dataset to the Power BI service is required for the incremental refresh policy to take effect, so it's the last step of setting up an incremental refresh.

Configure incremental refresh settings - Training | Microsoft Learn

Next > Check Your Answer

Practice Assessment for Exam PL-300: Microsoft Power BI Data Analyst

Question 49 of 50

You have a collection of datasets and reports.

You need to share the datasets and report together. This solution must **NOT** send any email notifications to internal users after sharing.

What should you create in the Power BI Service?

- ◯ a deployment pipeline
- ◯ a workspace
- ◯ an app

✓This answer is correct.

- ◯ metrics

Workspace apps can be installed automatically for any user in an organization, and without requiring notifications of installation. Deployment pipelines are used for moving artifacts between test, development, and production environments. Metrics are where you can create goals based off existing datasets. You can add members to a workspace, but they receive a notification that they've been added to the workspace.

Distribute a report or dashboard - Training | Microsoft Learn

Next >

Check Your Answer

Practice Assessment for Exam PL-300: Microsoft Power BI Data Analyst

Question 50 of 50

You manage a Power BI workspace.

You need to delegate the task to schedule data refreshes. The solution must use the principle of least privilege.

Which role should you use?

- ○ Admin
- ◉ Contributor

✓This answer is correct.

- ○ Member
- ○ Viewer

The Contributor role is the least privileged role that grants permissions to schedule data refreshes. The Member role grants permission to schedule data refreshes but is more privileged than Contributor. The Admin role grants the permissions to schedule data refreshes but is more privileged than Member. The Viewer role does not grant the permissions to schedule data refreshes.
Distribute a report or dashboard - Training | Microsoft Learn

Submit > Check Your Answer

Practice Assessment for Exam PL-300: Microsoft Power BI Data Analyst

Question 46 of 50

You plan to certify a Power BI dataset.

You need to identify at which level within your organization the permissions to certify a dataset are assigned.

Which level should you identify?

- ○ Dataset
- ◉ Tenant

✓This answer is correct.

- ○ Workbook
- ○ Workspace

Admin users who have permissions to certify a dataset are defined in the Dataset Certification tenant admin setting.
Manage and promote datasets - Training | Microsoft Learn

Next > Check Your Answer